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THE OIL WEEKLY

OIL & GAS ENGINEERING

News Statistics

THIS is a good time to use PRACTICAL tools

•

BYRON JACKSON CO.

FORT WORTH LOS ANGELES NEW YORK

BJ

September 4, 1931

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EDITORIAL INDEX, PAGE 11

A COMPLETE LINE OF DRILLING, CORING AND REAMING TOOLS

The complete line of Globe supertools equips any rig to drill a well to completion, through every character of formation, in the shortest period of time and at the lowest possible cost. Write us at once for Bulletins describing and illustrating the tools listed in which you are interested.

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2. **Double 3-Point Reamer, Model M.** All sizes.

3. **H. C. Smith Rotary Underreamer:** three-point reamer contact. Hydraulic trip control. Positive in operation. Smooth running. Sizes 3⅞" to 15½" inclusive.

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5. **Model "5" Reamer:** used in combination with Model B-2 Drilling Bit. Sizes 7¾" to 27" inclusive.

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7. **Globe Disc Bit:** a smooth running, fast digging disc type bit for holes from 10⅝" to 28" inclusive.

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11. **Globe Type "F" Rock Core Bit:** to run on any Globe or H. C. Smith Coring Outfit.

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A typical installation—in the East Texas Field. Fig. 2019-S on Steel Skids as shown. Also Fig. 2019-W mounted on Trailer.

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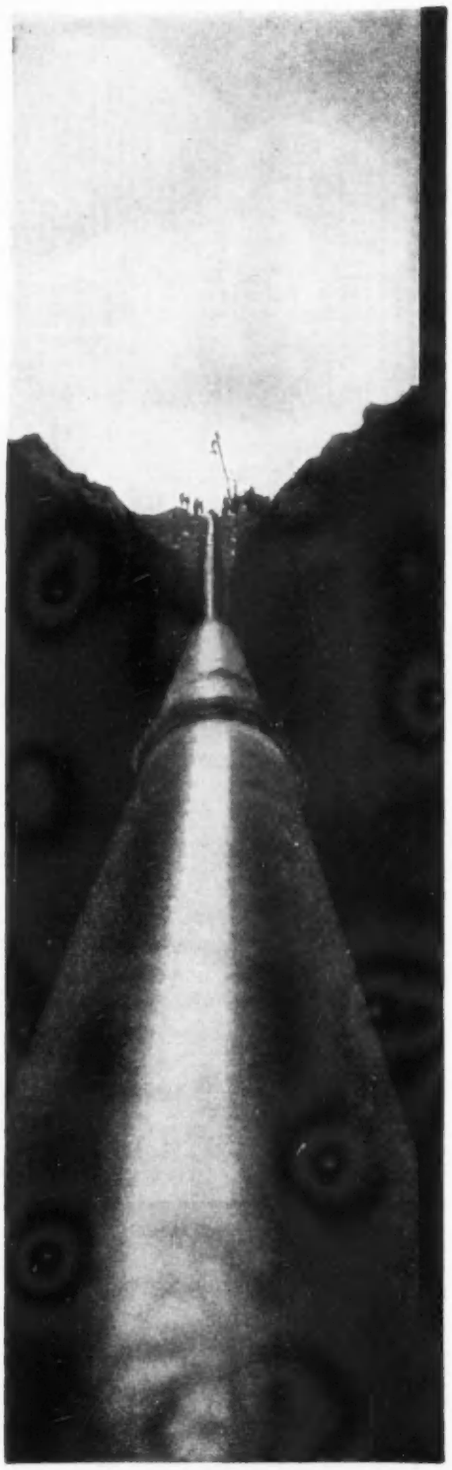

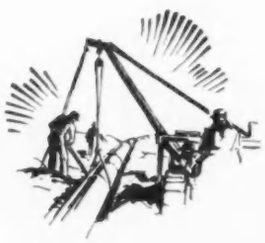

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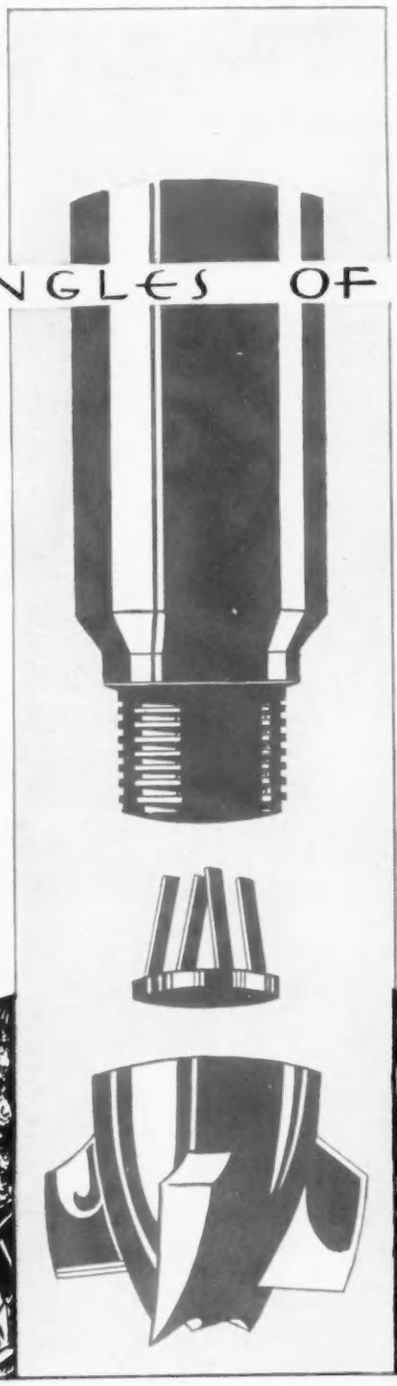
FROM ORE MINE TO GAS LINE

Elliott CORE DRILLS IN THE JUNGLES OF SUMATRA



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That Elliott Core Drills recover long, informative cores at the lowest cost per foot of core recovered is an established fact which has made them the choice of leading operators everywhere.

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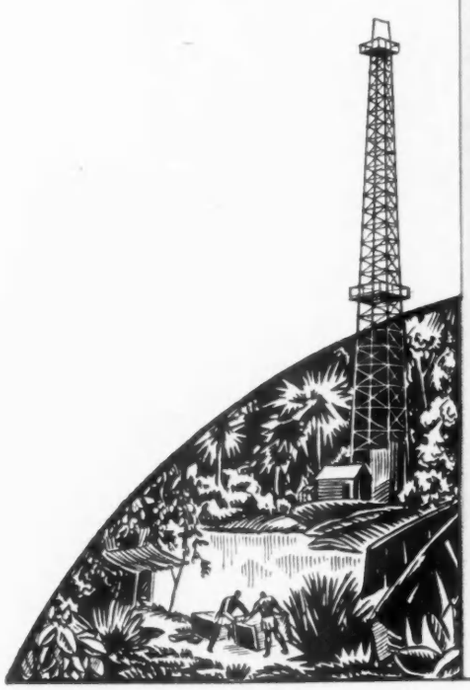

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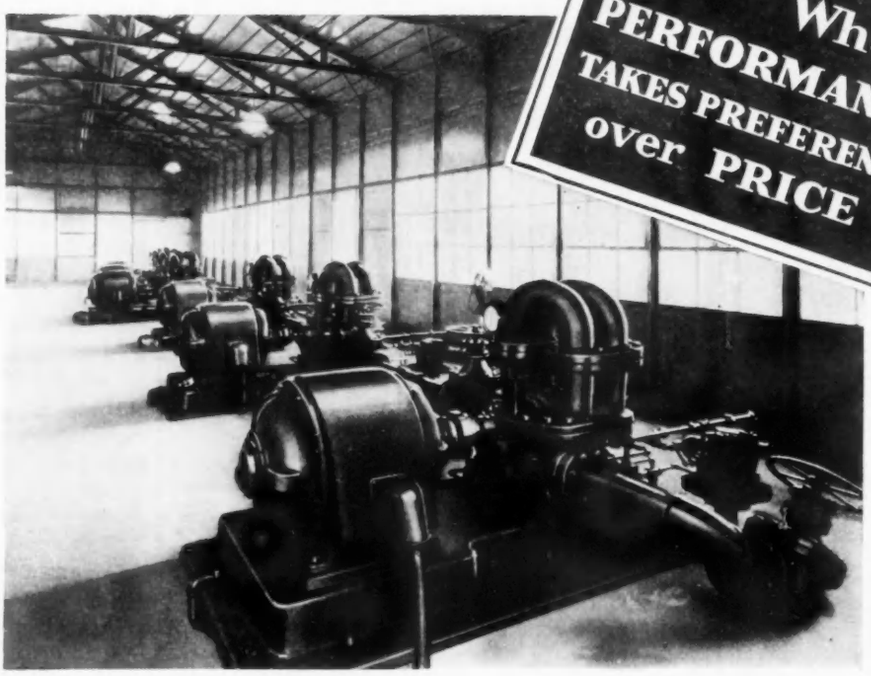

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CONTINUITY of operation...that is the keynote of equipment if it is to make good in the oil industry. SKF Bearings furnish that factor wherever they are used. On these Worthington 4" three-stage oil line centrifugal pumps, "SKF Performance Takes Preference Over Price."

SKF Bearings are especially fitted for this exacting service. Not alone by their assurance of smooth running but the fact that they show no wear...need no adjustments. These latter factors are important in prolonging the life of pumps, reducing maintenance and above all ... as a guard against costly shutdowns.

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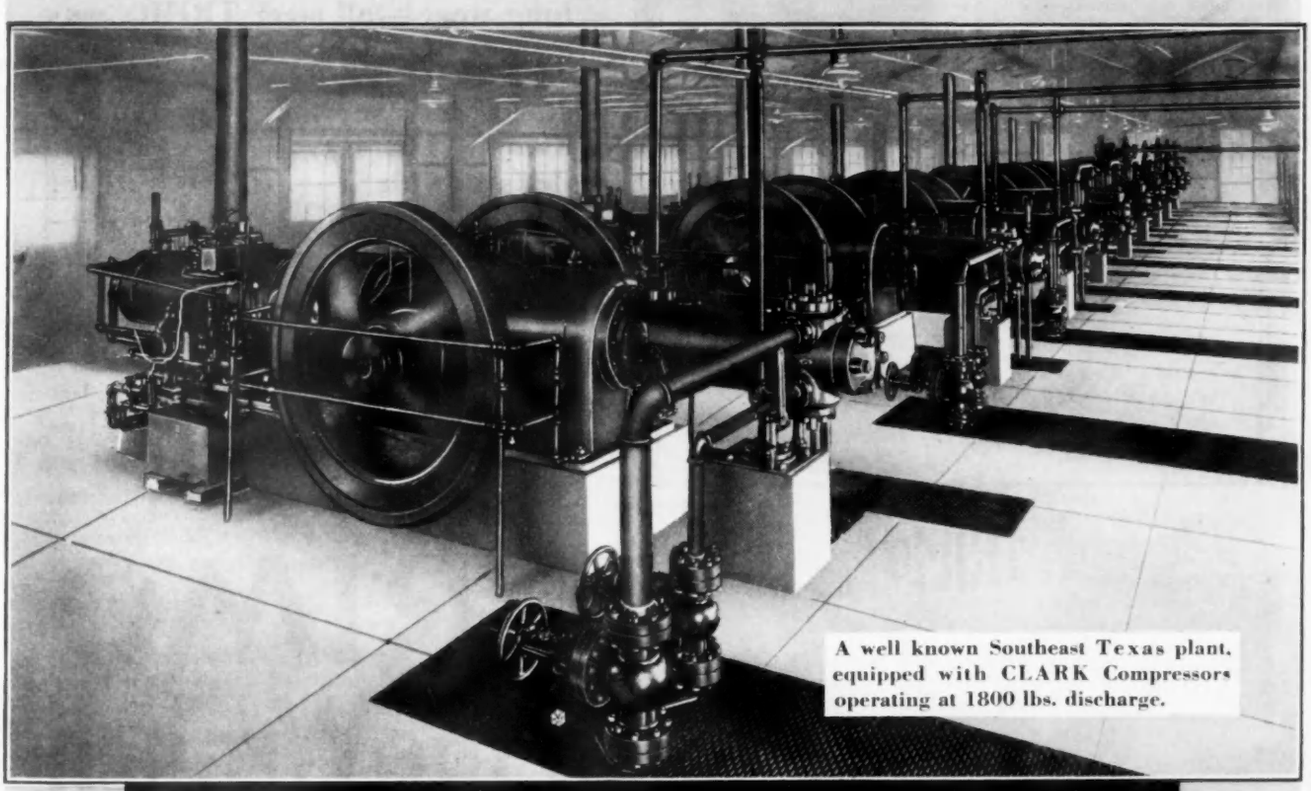

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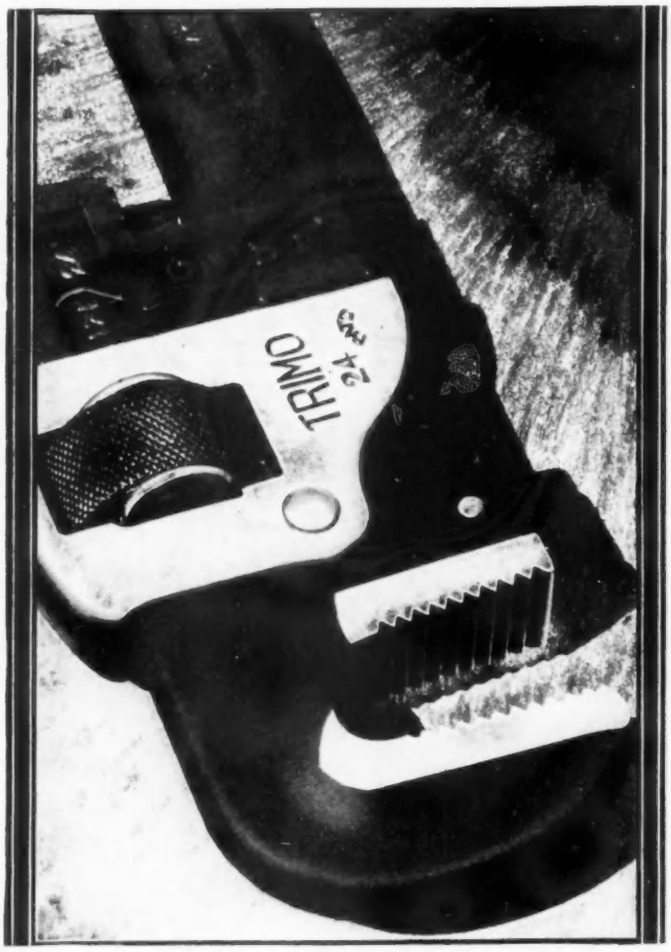


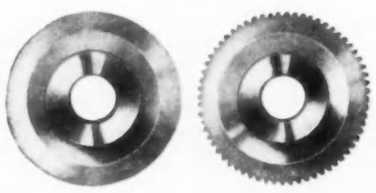
All Steel TRIMO

ON every claim that was ever advanced for a pipe wrench — safety, strength, convenience or long wear — all steel TRIMO gets a score of 100%.

No one has ever questioned the wisdom of TRIMO's swinging frame design, with its positive ratchet action. No one has ever questioned the fact that the way to get greatest strength in *every* part is to use steel in every part.

TRIMO is the logical choice for the oil fields today as it always has been. No safer, stronger, easier working wrench has yet appeared.

TRIMO



The new TRICROME cutter wheels (the silvered wheel with the red hub) have set a new standard of speed and efficiency in pipe cutting. By actual test in our laboratories, this remarkable record: 1000 clean cuts and still ready for more.

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President—A. A. Buschow

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12½" Lapweld
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8¼" Lapweld
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Our Oklahoma and Kansas Stores carry in stock all sizes used in the territory. McPherson Branch offers 20" best grade at $5.00 per foot. Oklahoma City Branch has 15½" Surface Pipe priced under the market. Bridgeport makes shipments anywhere. It will pay you to get our prices.

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At Oklahoma City: New 6⅝", 5% under market. Best used 4" with joints on, $1.10 per foot. 6⅝" Used, with tool joints on, 50c, 75c, $1.00, $1.50 per foot.

At Wichita, Kansas: 6⅝" Used, 90% good, only $1.50 per foot.

At McPherson, Kansas: New 6⅝" best grade, new drill pipe.

At Pampa, Texas: 6⅝" new drill pipe. 6⅝" used, 75c per foot.

At Kilgore, Texas: 3" new drill pipe, 10% under standard price. 4" best grade, with tool joints on, $1.10 per foot. 6⅝" singles and doubles from 75c to $1.50 per foot.

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ROTARY HOSE

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ATTRACTING ATTENTION

En route to California, on one of the fast trans-continental trains one hears people in all walks of life commenting on the Oil Situation. Every one is interested in "Alfalfa Bill" and freely predicting the outcome. East Texas is becoming well known, and even Kansas comes in for "knowing remarks" and is being given credit for something other than hot winds.

Summing it all up, the public is *for the oil man*, and willing to see him receive a fair price for his products. With three Governors working for him, and the outside public interested and watching, it seems we should have nerve enough to stick it out. The large cities are really just beginning to use oil and natural gas, and with this increased demand seemingly assured, the oil man can continue to find good use for his tools.

"Stop the Drill" can't last long. New territory is awaiting development, and new blood is going into the business—your chance is likely not far off.

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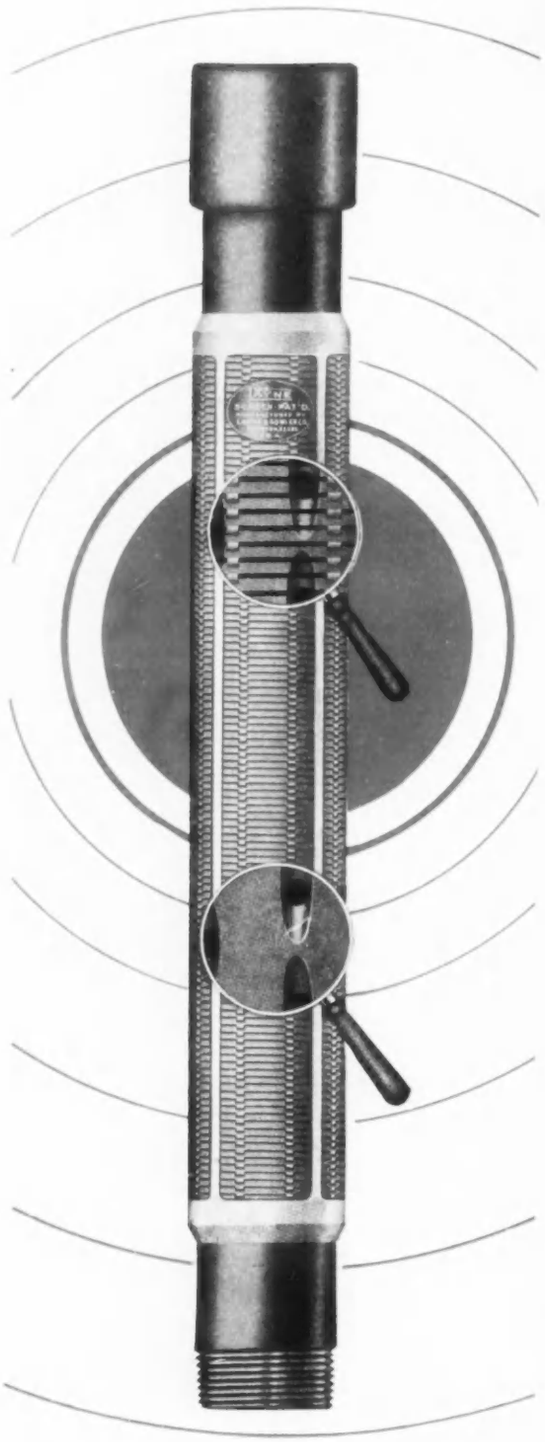
BRIDGEPORT MACHINE COMPANY
Wichita, Kansas



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The greater inlet area of the Milled Groove, and the Keystone Wire Wrap, are patented and exclusive features of the Layne screen. They are responsible for the vastly improved performance, greater satisfaction and freedom from screening troubles that you get when a Layne Milled Groove Screen is installed.

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Los Angeles, Calif.

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THE LAYNE
MILLED GROOVE SCREEN

SEP -8 1931

THE OIL WEEKLY

September 4, 1931
Vol. 62, No. 12

S. W. ROBINSON
Editor

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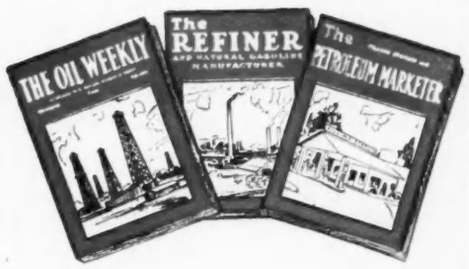

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THE OIL WEEKLY

VOLUME 62, NO. 12 SEPTEMBER 4, 1931

Governor Holds Up East Texas Proration Order

AUSTIN, Texas.—Following a conference between Governor R. S. Sterling and the railroad commission Tuesday at which Governor Sterling told the commission that he believed they had made a mistake in their proposed allowable of 225 barrels per well in East Texas, on a well basis and advising them that the per well basis had caused a storm of protest in East Texas, the railroad commission decided to withhold a proration order until Senator Pollard and other representatives of East Texas people could be present. The conference was scheduled to take place Wednesday, September 2.

Governor Sterling told THE OIL WEEKLY over long distance telephone late Tuesday that in his opinion the commission had set too high an allowable in view of the number of wells completed and nearing completion. He characterized as "nonsense" the rumor that he had called the commission in on the carpet and told them that if they didn't revise the order he would call another special session of the Texas Legislature and ask for a conservation commission.

"I did tell Mr. Terrell that I thought that the allowable was too high and I did tell him that I believed that he ought to talk with the East Texas people before finally issuing the order, in view of the bitter feeling against a per well basis," he said.

The Governor stated to newspaper men in Austin that the order as drafted would be ruinous to small producers and that he has issued orders to General Wolters who is in charge of martial law in the field, not to open any well without the specific orders of the Governor.

Per-Well Basis

The order as drafted this morning was on a per-well basis with an allowable of 225 barrels per well, which would mean an allowable of 340,000 barrels for the field, in which 1760 wells have been completed. It required the use of blow-out preventers, prevented bringing in a well through the derrick, and required the presence of a representative of the railroad commission when wells were brought in wherever this was possible.

Wells were to be spaced at least 330 feet from lease lines, and 660 feet apart on inside locations. No mention, however, was made of the control of the oil and gas ratios.

Former Governor Neff stated that he had not planned to sign the order as drafted, as it did not prevent the waste of gas, which is one of the specific requirements of the new law. He was evidently well pleased with the conference called by Governor Sterling.

TESTIMONY presented at Austin, following that which was presented in last week's issue of THE OIL WEEKLY, indicated that physical waste would not accompany the flowing of wells at higher rates than those suggested by the railroad commission's order issued September 1. In fact, testimony was offered in the form of actual well records which showed that water was not encountered or was not expected to be encountered by reason of allowing comparatively high rates of daily production.

At the session which was held during the morning of August 27, Ben C. Belt, representing Gulf Production Com-

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At the session which was held during the morning of August 27, Ben C. Belt, representing Gulf Production Com-

pany, occupied the witness stand and presented the following conclusions:

"There are 7186 acres in the two most congested drilling areas in the East Texas field, and 570 of the wells have been drilled on these tracts. In the most congested portion, there is an average of one well to 10 acres, and in the next most congested area, the average is one to 19 acres. The other wells in the field are drilled on the average of one to 100 acres."

Water a Local Condition

The water which has appeared in various parts of the field is a local condition, according to Mr. Belt, and can be eliminated by plugging-back, as these wells have been drilled too deep into the sand. He insisted that no recoverable oil will be trapped in the tight sands, as testified by E. V. Foran, but that all of it will be washed out and be produced as an emulsion of oil and water.

He insisted that operators should be permitted to drain the flush from their wells as a protection to their investment; otherwise, it will be drained by their neighbors. He stated that 5000 additional wells will be required to get the flush on a one well to 20-acre basis. This would cost $100,000,000.00, at the rate of $20,000 per well, and Mr. Belt stated that "they ain't that much money." He estimated the total potential recovery of the field at 3,600,000,000 barrels.

On cross-examination, Mr. Belt agreed that there has been some waste in East Texas by the creation of low-pressure areas. He stated that he expects higher gas-oil ratios as the field is depleted. He did not agree with Mr. Foran that the advance of the water table is equivalent to 250,000 barrels per day, and this will not be sufficient to produce the oil from the field, if the estimate is correct. He agreed that wells near the water line should carry back-pressures.

In answer to questions by R. E. Hardwicke, Mr. Belt stated that he believes the ultimate recovery of the field will be about 10,000 barrels per acre. He cannot see the possibility of establishing a uniform water table, or the equalization of field pressures by a shut-down, regardless of time, as the pressures were unequal before the field came in, in his opinion. He insisted that the maintenance of a constant reservoir pressure has no relation to the ultimate recovery, as the oil will bring the water to the hole. He agreed that offset wells should have the same oil gas ratios, and that efficient ratios should be maintained in all wells.

Well Basis Asked

Replying to questions from Governor Neff, Mr. Belt stated that proration should be on a well basis with each having a fixed production without regard to potentials. Such a plan is necessary to protect the vested rights of the owners of small strips. He admitted that this might encourage drilling, but believed proration on unit basis will have the same result, and will injure the large leaseholders. However, in his opinion, there should be no restriction. The increasing of distances between wells will also damage large leaseholders, as they will be drained by offsets on small tracts. If an oil-gas ratio rule is established, the commission should investigate the question thoroughly before promulgating an order.

Belt recommended a 300-barrel per well allowable to Governor Neff, which would mean 600,000 barrels for the entire field. He agreed that this might aggravate areas of low pressure.

L. G. Reinberger, Sinclair Oil & Gas Company, stated that he had taken oil-gas ratios on four of the company's wells and found the most efficient ratios at high rates of withdrawal. The best ratio was 297 to one when wells were running above 4000 barrels through 2½-inch tubing, and the poorest was 7000 to one on a well producing below 300 barrels.

It was determined, however, that these tests were taken with a Pitot tube which had not been calibrated for accuracy, and that no consideration had been given to the gas which went into these stock tanks, as the measurement was taken at the gas-trap vent. It was pointed out that most of the gas remained in solution at the high pressures of heavy withdrawals, and therefore it was generally believed that the measurements were grossly inacurate.

Glen Haroun, production superintendent for Sinclair Oil & Gas Company, gave a complete history of the completion and operation of the 76 wells owned by that company in East Texas, and insisted that none of them had been operated wastefully, or had contributed to waste in the field. He recommended that the wells be permitted to produce 4000 barrels each through 2½-inch tubing. Paul McDermott, attorney for Sinclair Oil & Gas Company, objected to questioning of Mr. Haroun concerning the use of artificial gas lift on Sinclair leases in East Texas, contending that the company has a suit pending in the Federal Courts on this question.

No Waste—Hudnall

J. S. Hudnall, Tyler geologist and consultant for Joe Danciger, insisted that there has been no waste attendant to the operation of the four Danciger leases in the field. There will be no appreciable water encroachment in the field for several years, in his opinion. He stated that there were 18 wells running water in the Kilgore area, and five in the Joiner pool.

On Friday night August 25, Hudnall displayed a map of the field showing the area underlain by bottom-water, which he stated was 40 per cent of the field, or 30,000 to 40,000 acres.

Hudnall next introduced a cross section from the Humble Oil & Refining Company's Crim 7 through Magnolia Petroleum Company's Florey No. 1, which includes the water area in the field. He stated that the greatest drainage had been in this district, where an average of 20,000 barrels had been taken from 500 acres. He pointed out that the Humble well showed no water when producing at 2,000 barrels, but made 9 per cent at 7,000 barrels. He stated that this indicated that water was not a menace in the area in spite of heavy withdrawals, as the wells could be plugged back and the water eliminated. He stated that at the date of highest withdrawal in the field there was only 1000 barrels of water produced to 750,000 barrels of oil, or .03 per cent. In his opinion, only six of these wells drilled too deep into the sand have had a damaging effect on other wells. He insisted that the gas-oil ratios are as low as in any Mid-Continent field, but admitted that this might be due to the fact that all of the gas is in solution.

Hudnall argued that a complete shut-down and control of the field would not prevent the water coming in, and that there would be little water trouble during the producing life of the field. The order should be issued on each

individual well, in his opinion. He stated that he believes that the theory that the water replaces the oil may be correct, but he doubted that it would work out practically.

In reply to questions by M. S. Church, Hudnall stated that there are 450 wells in the water area and that they will produce 150,000 barrels each before they are injured by water. He agreed that maintenance of uniform reservoir pressures would reduce the water hazard, but does not believe this is practical. He also agreed that a uniform water advance would increase the ultimate recovery.

C. V. Milliken, production engineer for Amerada Petroleum Corporation, Tulsa, who has had wide experience in dealing with water problems, has superintended the taking of bottom-hole pressures in about 75 wells in East Texas. He stated that these were used to determine relative depletions.

Milliken Tells of Waste

He insisted that unequal reservoir pressures in various parts of the field causes waste, as the energy is dissipated, and artificial energy must be used to produce oil that should be brought to the surface with natural forces, and that this also reduces the ultimate recovery.

Mr. Milliken gave graphic illustrations of the uneven advance of the water through sands of varying porosity, which he had determined by field observations and laboratory tests. He stated that the water front in East Texas is 200,000 feet, or 38 miles long; the water is advancing at the rate of one foot per day through a sand whose average thickness is 50 feet and whose average porosity is 28 per cent; this means a movement of 10,000,000 cubic feet or 500,000 barrels daily; recovering 45 per cent of this fluid would permit the withdrawal of 225,000 barrels per day, which he recommended as the allowable for the field.

He observed bottom-hole pressures in 75 widely distributed wells, and found the highest pressure to be 1613 pounds, and the lowest, zero. The lowest pressure was in the Joiner area, next the Kilgore, and the highest pressures were in the Lathrop area.

He explained that the oil moves from the high to the low pressure areas, and that the latter are caused by heavy withdrawals. The low pressure areas could have been prevented, in his opinion, by slower withdrawals. By disorderly production methods 12 per cent of the oil will be recovered, while by orderly production, the recovery will be doubled. He pointed out that reservoir pressures have declined from 10 to 12 per cent under irregular withdrawals. He stated, however, that the control of gas-oil ratios was of secondary importance to control of the water table.

Milliken recommended that proration be placed on the acre-unit basis, and that the field be considered as one reservoir. Consideration should be given to potentials later when the commission has gathered sufficient data. He pointed out that an arbitrary per-well allowable would cause heavy withdrawals from congested areas, and further reduce pressures in those areas. He explained that many wells in the field cannot be properly gauged for potentials, as the size of pipe would restrict the flow of 75 per cent of the wells in the Lathrop area, and the size of the tubing would restrict 95 per cent.

Advises Acre-Unit Basis

He argued that the acre-unit basis would be the nearest approach to an ideal condition, although this assumes that the same amount of oil underlies each acre, which is incorrect. He would not have wells spaced more than 1320 feet apart. He stated that his company owns 1000 acres, most of which is in the Lathrop area. His recommendation of control on the unit basis was to be used only during the time required to experiment and to determine the proper allowable for the field. He insisted that no damage would result under an allowable of 225,000 barrels.

Testimony of Mr. Foran and Mr. Milliken was endorsed late Friday afternoon by J. R. McWilliams, production engineer for Skelly Oil Company, W. K. Whiteford, production superintendent, Barnsdall Oil Company, F. C. Sealey, assistant district manager for The Texas Company, and S. A. Guiberson, Jr., independent operator.

Mr. Sealey suggested that no well should be permitted to produce more than its offset, and suggested a limit of 200 barrels per well. He suggested, further, that a five-spot well be drilled in the center of the large units to take the production allowed above 200 barrels on the unit basis, and thus prevent drainage of offset acreage, at the same time permitting the large tracts to produce all the oil their units allowed. The five-spot well, he explained, would be a well drilled in the center of the leases, corresponding to the spot in the center of a playing card of that denomination.

W. E. McKinney, Tyler operator, was the last witness on the stand. He endorsed the testimony of the proponents of proration. He insisted that plugging-back would not cut the water out of the wells permanently, as it would soon work up above the plug and come into the hole. He cited similar conditions at Powell and Mexia as examples.

As the hearing closed, C. V. Terrell chairman of the commission, invited all parties who so desired to write out an order as they thought it should be done and submit it to the commission for consideration on Saturday, August 26. As a result of this invitation, three orders were submitted to them, and practically all of those taking part in the hearing remained over in Austin on Saturday, and spent much of the morning going over their orders with the commission.

California and New Jersey Executives Discuss Merger

San Francisco, Calif. — Standard Oil Company of California and Standard Oil Company of New Jersey are considering a merger, and have issued the following statement:

"We have agreed that a merger of Standard Oil Company (New Jersey) and Standard Oil Company of California would be advantageous and logical. We are working toward a plan and no insurmountable obstacles have developed in our discussions. It must be appreciated, however, that a merger of this importance involves many intricate questions requiring careful consideration some of which were not and could not have been anticipated prior to our meeting here. Arrangements have been made to carry on studies of these questions, and for the resumption of our conferences at a date not yet fixed.

"Some of the impelling reasons for a merger are:

"The California company has important domestic crude oil reserves, but no important foreign reserves and only limited foreign distributing facilities. The New Jersey company has limited domestic crude oil reserves, but has large foreign reserves and an important foreign system of distribution.

"The New Jersey company operates on the Atlantic Seaboard and in the Gulf Coast states, the California company in the states and territory west of the Rocky Mountains.

(*Continued on page* 43)

"THE AUSTIN HEARING"

Being some impartial notes from an observer at the hearing before the Texas Railroad Commission at Austin last week on new rules for operation under the new Texas conservation law, at which attention was paid to practically no area but East Texas.

By RAY L. DUDLEY

THE difference between a Texas Railroad Commission hearing and a bull fight is that a railroad commission hearing is considerably more informal.

Rules governing a railroad commission hearing are presumably laid down by the commission itself and suffice. They partake of the nature of a trial in court, a street corner argument, a bull fight and a revival meeting at times.

To an interested layman, it seemed frequently that the object of the session (to develop information for the commission) was forgotten by witnesses and attorneys but it was very noticeable at all times that when a **commissioner** asked a question apparently a desire to give information was evidenced on the part of the witnesses. This could not always be said when the attorney for the opposing side was doing the questioning!

THE hearing at Austin, despite the informality of the rules governing it was, after all, a real lesson not only on East Texas but on the oil industry. Charts, maps, models galore were presented to make the testimony clearer. From these one could get an education on the East Texas fields.

No two people seemed to have the identical opinion in which event one got an object lesson on the oil industry.

PROPONENTS of a gas-oil ratio method of reducing production in East Texas received a severe shock when records taken on the gas-oil ratio from a number of wells were made a part of the testimony. Judging from the general summary made by some witnesses it would appear that in East Texas the more oil is produced from a well the lower is the gas-oil ratio.

WHAT the commission will do about gas escaping into the air in East Texas or being burned in flares is not apparent at this writing. The matter seemed to be lost in a labyrinth of testimony as to gas-oil ratio, water intrusion, property rights and the Texas Constitution.

If operators who are willing to burn the gas in the air in order to escape the hazard to life brought about by producing it and not burning it, were approached by a natural gasoline plant operator, desiring to take this gas off his hands and relieve him of the hazard, we are tempted to wonder if this gas might not have some slight value!

COMMISSIONER PAT NEFF, a former Texas governor, showed a keen interest throughout the hearing in gas waste and well spacing.

Why the operators do not utilize the natural gas produced with the oil was something that worried Mr. Neff. He wanted to know why it couldn't be put back into the ground and used over. The fact that the law would not permit the commission to enforce recycling or repressuring was the obstacle pointed out by witnesses. They all agreed that it would be a good thing provided it could be done as a unit, but testified that unit operation could not be enforced under the new law. Mr. Neff shook his head sadly at one point in the testimony as though to indicate that some day operators will be required by law to utilize this gas. Such a day undoubtedly will come.

Commissioner Neff apparently had the idea that conservation or something could be served by spacing wells 330 feet from lines and 600 feet apart in the open. Witnesses, however, testified that the best way to get the biggest ultimate recovery would be to drill the largest possible number of wells.

One could almost suspect Commissioner Neff of wondering whether or not the present law, which permits the commission to fix the spacing of wells as widely apart as may be necessary, and prohibits it from repressuring, were designed to waste instead of save the petroleum resources of the state.

TO use an oil expression, there was excessive withdrawal on four words of the English language at the hearing.

One of them was "not necessarily." We never realized how important these two words were until we saw what life savers they were to the witnesses on the stand.

The other two words "reservoir pressure," formed a technical retreat into which the opposing attorneys were unable to penetrate.

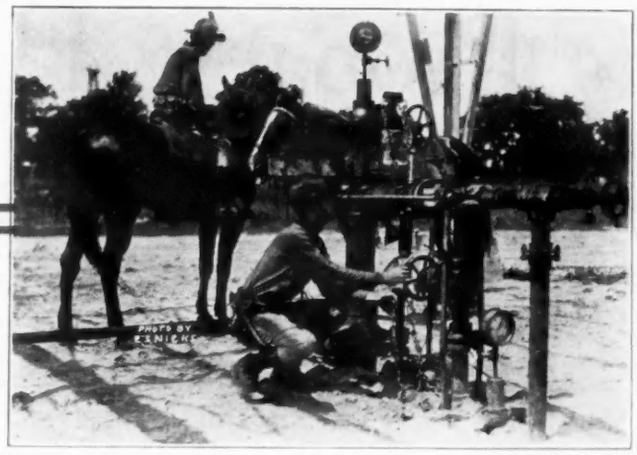
IT is a far cry from the Bradford field in Pennsylvania to East Texas, but the Bradford field (or fields) was the background for most of the technical evidence on water movement and its effect. The experiences at Bradford were brought into testimony and offered as evidence to

"WHAT of those contracts made for delivery of East Texas crude on a price basis of 15 cents to 25 cents per barrel, when the price goes up as a result of some kind of curtailment order?" we asked the executive of a large company which is reported to have an immense amount of oil so contracted.

"Those contracts are not unconscionable," he replied. "If the producer can produce the oil those contracts are good and enforcible. The producers went into those contracts with their eyes open. They thought that they were making a good deal. Why shouldn't they deliver on them?"

Later we learned that some purchasing companies had made cash advances on these contracts, running in some instances into many thousands of dollars. The situation in some cases is that the purchaser has advanced as much as 30,000.00 against contracts on which but a small amount of oil had been run when martial law was declared.

When the Texas Cavalry Closes a Well



It Is Proposed That It Stay Closed

show why a reduced withdrawal of oil in the East Texas field would tend to reduce underground waste.

A comparison of the size of the grains of sand in the two fields and the comparison of the permeability of these sands were discussed. Engineers generally seemed to be agreed that a controlled water flood might increase ultimate returns, but witnesses and attorneys for Sinclair, Danciger and the Gulf argued that the restriction of production in East Texas would not be a sufficient element of control to make the experiment worth while.

The proponents of the proration order, on the other hand, argued that while a fixed withdrawal from the East Texas field might not of itself be sufficient factor to guarantee perfect control, it was at least a long step in that direction.

APPARENTLY testimony was read into the records on the basis of which suits could be brought to oppose any rule of the commission based on water menace as affecting the east side of the pool. Witnesses for Gulf Production Company and Sinclair Oil & Gas Company testified as to ownership of leases in the eastern section in territory not underlain at the present time by water. A technical witness for Gulf Production Company testified that the possibility of water movement into the eastern part of the pool was so remote as to not be worthy of consideration.

IF the commission promulgates any kind of proration or other order on a well basis in East Texas, it will undoubtedly result in a heavy new drilling campaign there. A well basis order will influence the immediate drilling of inside locations on many leases having only one well but capable of having a minimum of eight to 40 wells under any kind of spacing order. Most of this new drilling campaign, if it is undertaken, will be done by the larger companies who, generally speaking, although not exclusively so, have the larger tracts yet undrilled in East Texas.

HUMBLE Oil & Refining Company, one of the biggest operators in the East Texas fields, was conspicuous by the absence of its representatives. This company was brought into the discussion but casually, reference being made to one of its wells which had shown some water.

CARL ESTES, the stormy petrel of East Texas proration matters, was in Austin the first day of the session. His conversation was confined rather to his health, which he said was very poor, and to a discussion as to what he would do to certain men whom he termed "maligners," rather than to a discussion of the actual oil situation. Mr. Estes and Ed Landreth, who occupied opposite corners in a one-sided tilt in East Texas a few months back, engaged in a very friendly conversation and apparently showed signs of eventually looking through the same spectacles.

A NUMBER of West Texas operators were present at the hearing. Naturally, they are very much in favor of proration in East Texas. "Why not?" one of them asked when queried as to what his interest in the East Texas proration order was. "We have prorated in West Texas, we have obeyed the Texas Railroad Commission's orders, why shouldn't we be interested in seeing the other fellow do it? We led the way."

AS the week opened following the hearing it appeared that there would be as merry a fight on the "well basis" vs. the "unit basis" as there was between gas-oil ratio and reservoir pressure.

Independents in East Texas were protesting loudly that a well basis order would cause them to do a lot of drilling that they do not want. They seemed to think that a unit basis would be better. To us it appears that whether it be a "well basis" or a "unit basis" there will be a lot of drilling under way if the proration order sticks.

RUMORS had it in Austin that one company already had its injunction petition prepared! There seems little doubt that the commission's order would be allowed to stand without a court stand. Fortunately for those who like action the new law provides that there shall be no delay—that such injunction suits shall have right of way and that a bond shall be posted by the complainant.

SUMMING the whole thing up, one cannot get away from the definite impression that our new conservation law in Texas is nothing to write home about and that most of us were in Austin hoping to see an order issued that would help the "situation", an order based on a law that specifically prohibits the "situation" being helped!

A GROUP of interested men were talking about conservation, its effect on the future of Texas and all that sort of thing. "We're here for the benefit of posterity," exclaimed one.

"Whose posterity"? somebody asked.

The other fellow scratched his head. "Well, I guess," he drawled, "I guess it must be our Dad's posterity."

Ventura Probably Has Oil Below 15,000 Feet

Finding Out Is a Real Challenge to Mechanics

By BRAD MILLS
Staff Representative

ASSUMING that mechanical means will be devised for such an achievement, there is no definite reason why the Ventura Avenue field should not prove productive at a depth of at least 15,000 feet. While this maximum may seem fantastic, there are excellent reasons to believe that the field should be productive at even 21,000 feet. In no California field, and perhaps nowhere in the world, are the deposits so ideally laid down for such an extensive producing thickness.

Discussion of production at 15,000 feet, or even considerably deeper, immediately involves a maze of both mechanical and geological details. The present maximum depth of 10,000 feet makes an additional 5000 feet appear extremely problematical, but we need to go back only a few years to find a maximum depth of 5000 feet. Doubling of the depth record during a few years does not necessarily point to a depth twice as great as our present maximum depths, but it does not appear too far-fetched to assume that holes may some day be 50 per cent deeper than the deepest of today.

Granting that development of oil at 15,000 feet, or deeper, is dependent on geological and mechanical conditions; we have both a natural and human element present. If the Vaqueros carries oil at about 17,000 feet and no method can be devised to reach it, then the mechanics of the problem is at fault. If equipment and methods are improved and a depth of 15,000 feet is reached, only to find this part of the Miocene barren, then more natural conditions are at fault and human ingenuity is somewhat vindicated.

Possibility of extremely deep production at Ventura Avenue has interested geologists and operators for years. Only a few miles from the field it is possible to check outcrops which point to a maximum producing level of around 21,000 feet. There is not as much guesswork about such a conjecture as might be supposed. All of the principal formations supposedly present below 10,000 feet have been productive at some point in California, while the 21,000-foot Sespe and Eocene in this field actually produce oil at South Mountain, only a few miles from Ventura Avenue. Such a definite isolation lends strength to the theory that production is possible below 20,000 feet.

It is true that the Miocene, as judged from the outcrops a few miles from Ventura Avenue, does not look as compact and promising as in some of the fields where it is the chief producing formation. This has led many geologists to believe that this group may have been the generating body for the higher Pliocene, but such may not be the case. Even if this proves true, the still deeper zones may prove productive at various levels, if it is possible to reach them. The deposits near the field indicate a thickness of at least 21,000 feet, and there is no definite reason to believe that they will be absent over the entire area.

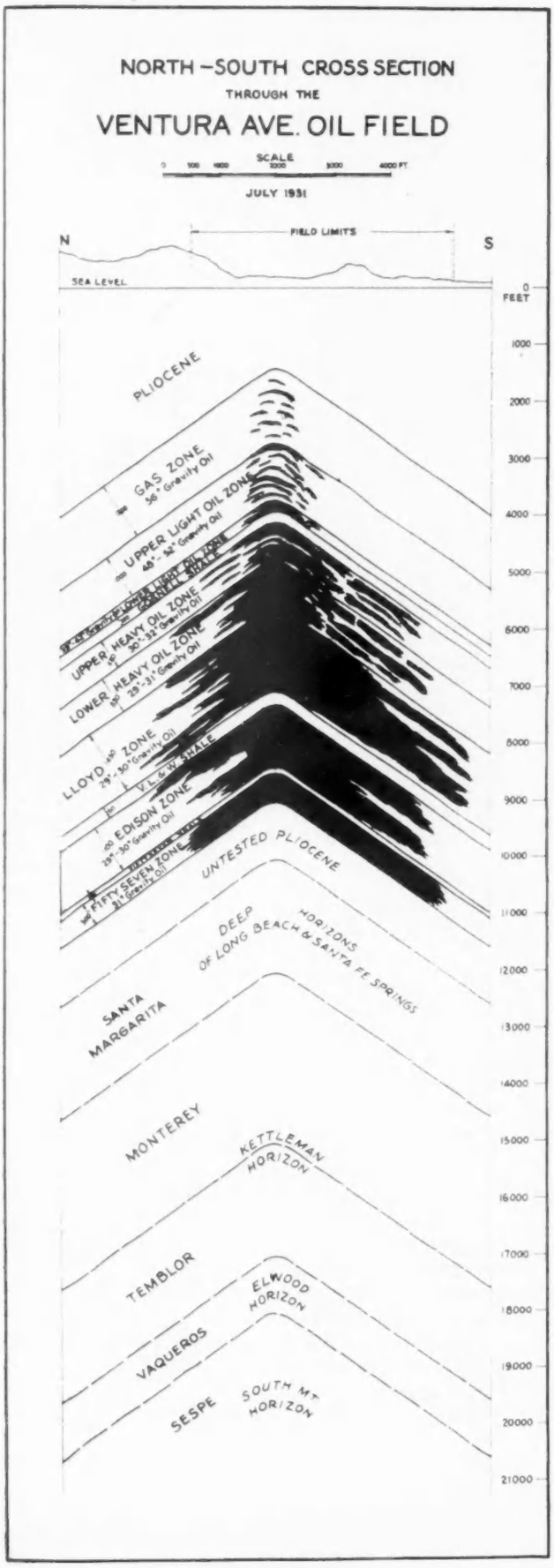
A study of the zones opened up in the lower Pliocene shows Ventura Avenue to be a very great oil reserve. Since the deepest production is coming from a depth of 8823 feet, we have regarded such a level with awe. But it is when we consider that wells are started in the lower Pliocene and end in the same age that it is possible to understand the thickness of the deposits in this valley. The Miocene, which is so productive in various California fields, lies deeper to tempt the ingenuity of the operator. Development of the lower Pliocene should claim the greater part of the operators' time, but the desire will soon come to test those formations which should establish one world's record after another.

The mechanical phase of drilling to depths of 15,000 feet, or greater, must not be overlooked, and at present is as important as the quality of formations. Nature has already done its part in laying down the 21,000-foot blanket of deposits, and it is too early to worry about what will be found, since equipment and methods are not ready to attempt a depth of 15,000 feet. The theoretical depth limit with present equipment is 10,000 feet, but slightly greater depths probably could be reached under favorable conditions. Some of the equipment now in use would stand depths of 15,000 feet, but there are many weak spots to be strengthened.

More than 7000 feet of almost continuous oil sand and shale has thus far been developed in the lower part of the world's thickest known section of the Pliocene series. Since the thickness of the oil sand in this area and the structure closely parallel Long Beach, the known horizons at Ventura Avenue may be expected to rival those at Iong Beach in yield—about 500,000,000 barrels ultimately from known sands. The field has long been known as a "text book" structure, due to its approximation to the ideal field.

The tested horizons have been unusually productive at various levels. Completion recently of Associated Oil Company's Lloyd 57 at 8823 feet with an initial production of 5000 barrels opened a new zone in the field and makes much deeper drilling more attractive than ever. The well is stratigraphically about 800 feet deeper than any previous completion and was stopped nearly 5000 feet below the base of the Gosnell shale, representing a thickness of oil zone almost as great. This well is flowing from a new zone which has been classified as Class 4, and a part of Class 3 zone. It is the deepest commercial producer of any consequence in the world, although there is one small well in Texas which is deeper.

Completions in the Pliocene around 6000 feet are called Class 1 producers. Wells completed between 6200 feet and 7400 feet are classified as Class 1 and 2 producers. The Class 3 zone producers are limited in number and fall between 7400 feet and 8000 feet. Many wells are flowing from more than one zone, as classified into the four groups. A careful study of the cross section will give the reader an excellent conception of the many zones and shales, as proved by the drill and classified according to name.



Untested Horizons

The untested horizons, listed downward in their order are:

1. About 1000 feet of basal Pliocene sands which are productive in all major fields in which they are present. The deepest well stopped in excellent oil sand and the base of the Pliocene should prove very productive.

2. About 2000 feet of uppermost Miocene sands which are extremely rich in such major fields as Long Beach and Santa Fe Springs. These sands fall easily within the 15,000-foot limits tentatively established.

3. Some 3000 feet of shaly upper Miocene which occassionally furnishes small yields. This formation does not offer exceptional promise here.

4. Approximately 2000 feet of Miocene horizons which are productive at Kettleman Hills, but which may be too fine-grained at Ventura Avenue for large production. Attainment of such depths might develop a good production, however.

5. About 500 feet of coarse, basal Miocene sands which are very productive in the Elwood field. This Vaqueros sand should produce at Ventura Avenue, but its relation to the upper producing bodies may determine its value.

6. Approximately 4000 feet of Oligocene rocks which yield oil in adjacent South Mountain fields.

Horizons down to a depth of about 21,000 feet beneath Ventura Avenue are productive in nearby fields. Since this field is the most nearly perfect closed dome in the district, the deeper zones will almost certainly be found productive, if they can ever be reached by the drill. The larger yields may extend, however, only to about 17,000 feet, which is the depth at which the Elwood (Vaqueros) sands will be found.

As the remainder of the lower Pliocene should certainly prove very productive, it may be some time before it is necessary to test still deeper zones. The uppermost part of the Miocene is especially productive in the best Los Angeles basin fields, but the depth of this horizon is somewhat excessive. This part of the series may prove to be the generating body for the higher Pliocene, but such a theory is not universally held. The shaly upper Miocene may, or may not, produce oil in large quantities. It has been known to produce some oil, and might show a reversal in this field by proving of more uniform texture. The portion of the Miocene (Temblor) which is productive at Kettleman Hills, might also prove productive at Ventura Avenue, but the fields are too far apart to make definite comparisons. Outcrops indicate that this horizon is too fine-grained to produce heavily, but it is also a very tight sand at Kettleman Hills. The Vaqueros offers much promise but appears very deep for the drill, while the 4000 feet of Oligocene rocks, productive at South Mountain, are a questionable factor.

Metallurgy and 15,000 Feet

If one of the Ventura Avenue operators were to announce that a well would be drilled to 15,000 feet to test the middle Miocene, he should expect various mechanical difficulties below 10,000 feet, regardless of the care exercised. Much of the surface equipment now in use would be good for 15,000 feet, with adjustments and refinements, but the metal which actually goes into the hole would be forced to bear the brunt of the grief.

Metallurgy will play an important role in drilling to 15,000 feet. The oil industry has not given this science the proper recognition for its work in developing better steel. Various pieces of equipment are almost twice as strong as those in use a few years ago.

Metallurgists at a leading California university have discovered that a wire or tube of uniform diameter and made of the strongest steel now in use will part at about 12,500 feet when suspended in air. This means that the wire or tube will pull off from its own weight at a limit not much greater than the

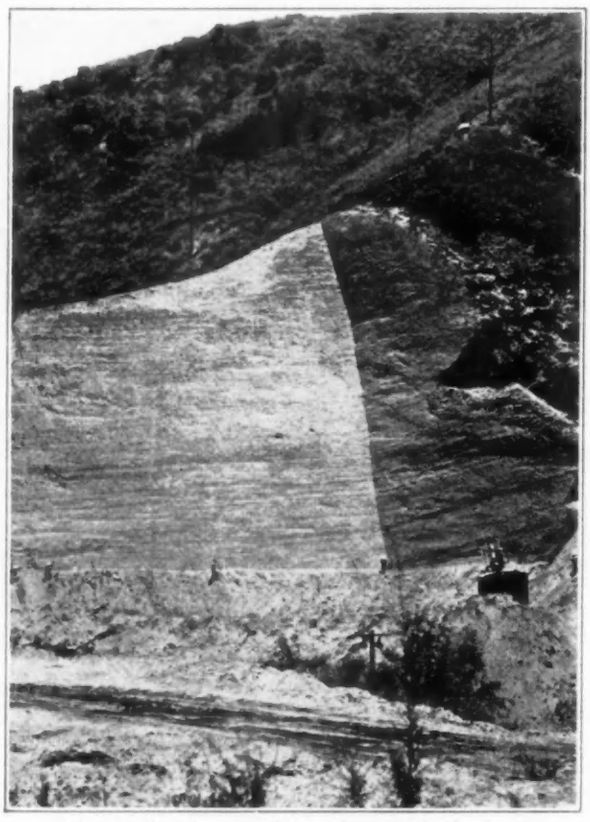
depth of the present record well. It is difficult to get a direct connection between this breaking off and the suspension of a string of drill pipe in mud at 15,000 feet, but we can see that steels will have to be improved if a depth fully one-half greater than the present maximum is reached.

The best field men agree that drill pipe is perhaps the weakest link in deep drilling, although other equipment also falls short of requirements. A 10,000-foot string four-inch drill pipe might be compared with a hollow steel thread suspended 10 feet and in full view of the observer. A thread of the best known steel could be twisted easily with the fingers. This gives some idea of the strain which would be imposed on a 15,000-foot string of drill pipe.

Floating in of drill pipe greatly facilitates handling, but there are other factors not to be overlooked. The torque is naturally increased by a hole full of mud; so where there is an advantage, a disadvantage crops out to offset the point gained through buoyancy. Twisting off at great depths is to be expected where the formations are unusually hard and tough.

Manufacturers and oil companies have given much time to the improvement of drill pipe. Special alloy drill pipe is in the experimental stage, and the best now in general use is a heat treated product which is far superior to standard drill pipe of the past. Failures on all types of drill pipe have been studied and results checked. Nearly all failures were the result of fatigue. The special heat treated pipe has made a good record, but there is doubt whether it would drill a hole to 15,000 feet under present conditions.

The new heat treated drill pipe is the best yet developed and is made to withstand shock and strain, where casing must be protected chiefly against high pressures. This necessitates different chemicals, alloys and methods in the manufacture of drill pipe than in the best casing. Tests of sections cut from the walls of 6⅝-inch, 25.20-pound pipe showed a high tensile strength of 110,000 pounds, a yield of 75,000 pounds and a Brinell hardness of 241.



Excavating for a well location in the Ventura Avenue field

There is room for improvement in other equipment, and certainly much of the material now in use is not suited to 15,000-foot depths. Casing, derricks, pumps, rotary hose, elevators, draw works, hooks and wire lines may need to be improved before the 15,000-foot hole is attempted. Much of this equipment might be crowded to such a level, however. General drilling technique, such as the maintenance of circulation and cementing of casing would play an important part in new depth records. Present cementing practice might prove effective in landing a string of casing at 14,000 feet, but pressures and temperature might combine to defeat such a plan under current conditions.

The best casing now in general use is the Grade D stock, which is an alloy of silicon, manganese and chronium. It has a high tensile strength of 108,000 pounds, a yield point of 67,500 pounds and a Brinnell hardness of 235. This casing might be landed at 14,000 feet, if run in connection with another string, and floated in under favorable conditions. Such a supposition can not be based on any definite experience, however, and it may be necessary to develop a much stronger casing for cementing at depths up to 15,000 feet.

Extremely high pressures may be partially controlled in deep holes by forcing each of the upper strings of casing to carry a portion of the hydrostatic head. Nature of the formation below the last intermediate shutoff should largely determine the methods necessary in running casing to record depths.

It is now possible to secure mud pressures up to 3500 pounds, and it is doubtful whether a greater pressure would be recorded in drilling to 15,000 feet.

A 175-foot derrick, such as the one used by Superior Oil Company at Kettleman Hills, probably would drill to 15,000 feet. Such a derrick has a safe load capacity of 1,000,000 pounds.

Such equipment as bits, core barrels and average surface material would perform satisfactorily at depths up to 15,000 feet. Refinements and improvements will come about so gradually that when the time is ripe for such an achievement, much of the equipment now in use will be obsolete.

Temperatures

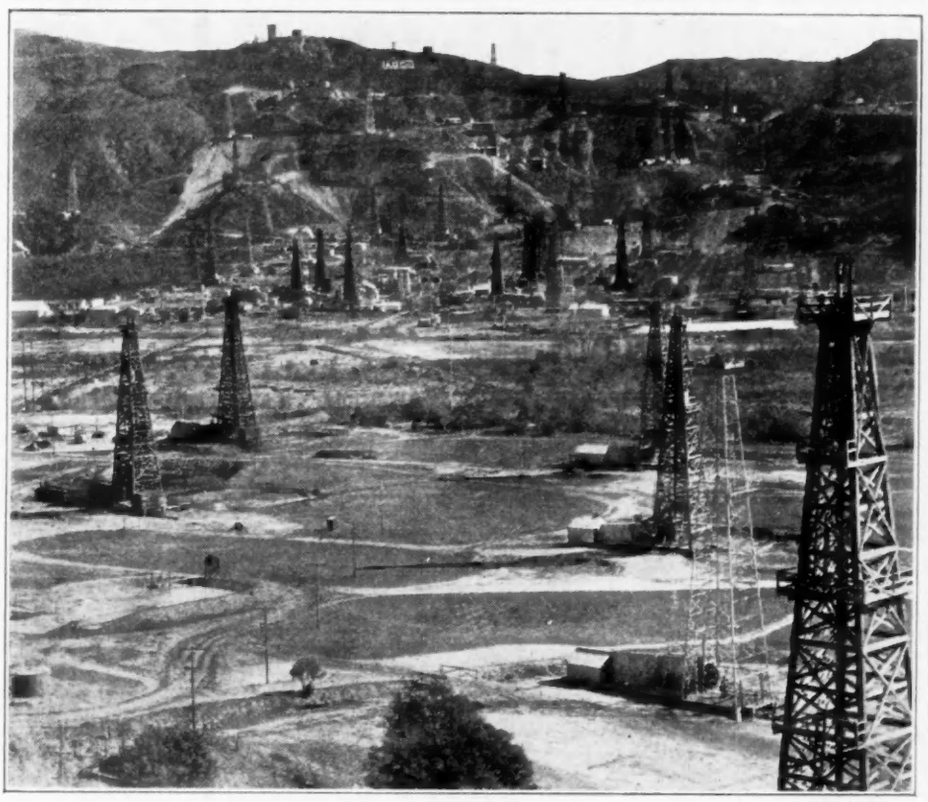
Temperature will be a very important factor in drilling the 15,000-foot hole. Unfortunately, little attention has been paid to this phase of drilling. At Santa Fe Springs, McDowell Graves studied temperatures at depths up to 8100 feet and obtained a maximum recording of about 206° F. at around 8000 feet. A formula, with a correction factor, was applied and the estimate at various depths checked closely with temperatures obtained by actual tests. The same temperatures would not prevail at uniform depths in different fields, due to many factors. A reading of 167° F. was obtained at about 6500 feet in the Ventura Avenue field, but it would be difficult to estimate temperatures at 10,000 feet and 15,000 feet. Regardless of formations, a cementing depth of 14,000 feet would require conquering a very high temperature.

Judging from temperatures obtained at various levels at Santa Fe Springs, Long Beach, the heat at 15,000 feet at Ventura Avenue would be extremely high. But a limited number of readings at Ventura Avenue indicate that this field will prove somewhat cooler than the average.

At Santa Fe Springs, McDowell Graves and Rolla Walling arrived at a formula which checked fairly well with actual readings. The formula was

$$56+\frac{\text{Depth}}{52}=\text{Temperature in Degrees F.}$$

Readings varied so widely, however, that an average had



Looking north across Ventura Avenue

to be struck. Associated Oil Company encountered a temperature of 206° F. at 7802 feet in Clarke 2 at Santa Fe Springs, while Richfield Oil Company obtained a reading of 195° F. at 7115 feet in Clarke 2. Readings in General Petroleum Corporation's wells were also interesting, showing 176° F. at 5350 feet in Santa Fe 14, 180° F. at 7000 feet in Jalk 111, and 201° F. at 7250 feet in Santa Fe 228. These variations were wide and irregular.

At Long Beach, Union Oil Company obtained a reading of 158° F. in L. B. C. 21 at 5000 feet, while at 7450 feet in the same well the temperature was 198° F. This gives this field a slightly different formula from Santa Fe Springs.

A reading of 167° F. was obtained at 6500 feet in a well at Ventura Avenue. With this known factor, it is possible to arrive at a formula which should apply roughly to greater depths. This would become

$$X + \frac{6500}{52} = 167° \text{ F.}$$

Clearing out, we find that the unknown variable, "X", equals 42. This gives us a formula for Ventura Avenue, which would be

$$42 + \frac{\text{Depth}}{52} = \text{Temperature in Degrees F.}$$

Therefore we have, at a depth of 15,000 feet,

$$42 + \frac{15{,}000}{52} = 330° \text{ F.}$$

A formula which may be adapted to most localities is

$$m + [(d\text{-}30) \div 68] = \text{degrees F.}$$

In this formula, m equals the mean temperature of the area; d the depth of the hole; and the 30 feet the depth below the surface at which we may expect the temperature to remain the same all through the year. For all practical purposes, this 30 feet may be neglected. The 68 feet is an average depth for an increase of one degree in temperature at Ventura Avenue. At Santa Fe Springs the temperature increase is about one degree for each 50½ of depth.

An average of 35 mines shows an increase of one degree in each 64 feet. Using the 64-foot depth for an increase of one degree would give us, roughly

$$55 + \frac{15{,}000}{68} = 289° \text{ F.}$$

Using our Ventura field factor, we have, at 15,000 feet,

$$55 + \frac{15{,}000}{68} = 276° \text{ F.}$$

This gives us a much lower temperature than the formula used previously in this article.

From this, we may conclude that it will be very hot at 15,000 feet. The geothermal gradient would be represented in a hyperbolic curve, since the ratio of increase is not necessarily proportional to the increase in depth.

Temperature has not been recognized as a factor in cementing by some operators, but at extremely high ranges it must be recognized. Substitution of sulphur for cement has been considered, but little is known of the practice.

The behavior of rotary mud at temperatures up to 330° F. is a very interesting study. It may be necessary to mix special chemicals with it to prevent setting, or baking, at excessive temperatures. Mud often becomes sluggish when heated, but this weakness could be overcome with proper ingredients.

The writer is indebted to F. W. Hertel, petroleum engineer for Associated Oil Company at Ventura, and J. E. Eaton, consulting geologist for their assistance in preparing this article.

Whether a depth of 15,000 feet will be reached is still as much a question as it was 10 years ago, but we must admit that the maximum depth has approached this figure at a rapid rate during the past few years.

Pipe Lines to Pass Under Ship Channel in Tunnel

Project of Sinclair-Texas Pipe Line Company near Houston affords various advantages over customary crossings

By JACK LOGAN
Staff Representative

IN building a concrete tunnel under the Houston ship channel as a conduit for pipe lines, Sinclair-Texas Pipe Line Company is doing a job which is of considerable interest both from the engineering standpoint and from a business or economic viewpoint. That it may be the forerunner of numerous other similar projects is indicated by the fact that Shell Pipe Line Company is also considering plans for a tunnel of the same nature under the Houston ship channel a short distance from the Sinclair duct.

Subway Engineering Company, Chicago, is doing the construction work on Sinclair-Texas Pipe Line Company's tunnel. The work is well advanced, having been started early in June, and it is expected to be completed around October 1 or soon afterward. Subway Engineering Company has had the experience of building a tunnel of this kind before, having constructed that for Sinclair Pipe Line Company under the ship channel at East Chicago, Indiana.

The conduit under the Houston ship channel is adjacent to the refinery and shipping terminal of Sinclair Refining Company, near Houston, and the decision to build it was precipitated when Sinclair-Texas Pipe Line Company laid plans to provide itself with a pipe line connection from the flush East Texas field to the above refinery. The company has already completed and begun operation of that system, using a temporary line for crossing the ship channel, that line having been laid at the bottom of the channel in the customary manner. But with completion of the tunnel the temporary line will be replaced by a line running through the new conduit.

Since the tunnel under the channel will be eight feet wide and eight feet high, it will afford capacity for six or seven pipe lines with 12-inch inside diameter, laid side by side on the floor of the tunnel; or if smaller lines are laid the duct will hold an even greater number of units. In view of the amount of capacity, it is likely that the Sinclair interests will lease space in the tunnel to other companies which have or will build crossings in the immediate vicinity. Companies which have existing lines laid at the bottom of the ship channel nearby and which would be logical applicants for space in the tunnel include The Texas Pipe Line Company and Stanolind Pipe Line Company.

The subterranean passage for the pipe lines will consist of a vertical shaft approximately 90 feet deep on each side of the ship channel and a horizontal tunnel 600 feet long connecting the bottoms of the shafts. The shafts have been completed, and work on the tunnel is progressing from each of the shafts, the plan being for the workmen to excavate to a common point midway beneath the channel.

Construction of Vertical Shafts

Each of the vertical shafts consists of a steel reinforced concrete cylinder, the walls of which are 18 inches thick;

On each side of the ship channel there is a vertical shaft leading down to the tunnel which passes beneath the channel. The man in this picture is shown standing by one of the shafts. To the right of the shaft is a bucket, suspended by a wire line from a crane, used in excavating the hole occupied by the shaft

the outside diameter of the shaft is 13 feet and the inside diameter 10 feet.

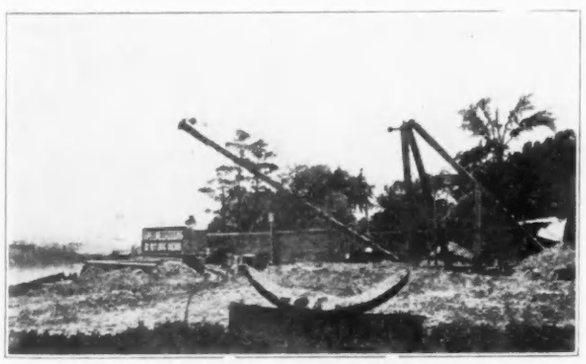
Construction of the shafts did not embody any new engineering ideas, for similar work has been done in such projects as foundations for large river bridges. The weight of the concrete was utilized, dirt being removed from the inside of the shaft, and the thick walled concrete cylinder meantime making its way downward, as additional two-foot sections or rings of concrete were laid down successively. Thus the shaft actually consists of those successive two-foot sections extending from bottom to top.

The bottom section or ring was equipped with a steel cutting shoe, such as is employed commonly in caisson construction. That shoe consisted principally of steel boiler plate extending around the outside diameter of the bottom section of concrete, and downward somewhat beyond the concrete; and through use of wooden forms into which the concrete was poured, the concrete face of the bottom ring of the shaft tapered off upward from the steel cutting shoe along the outer edge of the shaft to the inside of the wall of the cylinder. Thus the bottom of the shaft presented the appearance of a sharp cylinder with an outer steel cutting edge, with the concrete of the walls of the shaft tapering upward and inward from that outside edge to the inner edge of the wall. As the two-foot sections of concrete were added above it, and as dirt was removed from within it, this bottom cutting section worked its way downward.

The removal of the earth from within the cylinder was accomplished with a clam shell bucket, which was operated from a large wooden boom. Since the shaft sank through its weight and the excavating with the bucket, it was not necessary for any worker to descend into one of the shafts until it was about 80 feet deep. The formation through which the hole was dug included mostly sands and shales but some clay was also encountered. Water broke in from some strata but not in such quantity as to offer much difficulty in obtaining a shut off.

Prior to sinking of the shafts the Sinclair interests had drilled several test holes slightly below the anticipated depth of the tunnel, taking cores and obtaining advance information as to the sub-surface conditions to be expected. There is apparently no quick-sand deposit within the depth of the tunnel to offer any difficulty.

The numerous two-foot high sections of concrete, 18 inches thick, which made up the vertical shaft, were made by pouring concrete into special wooden forms. As each new section was added and lowered, the successively higher



General assembly of equipment used in sinking the two vertical concrete cylindrical shafts, one on each side of the channel, for Sinclair-Texas Pipe Line Company's conduit for pipe lines under the Houston ship channel. While the excavating for the shafts was by means of clam shell buckets and cranes as here shown, the digging in the horizontal passage underneath the channel between the bottoms of the shafts called for hand-operated air spades and removal of the earth in buckets moved to the shafts and then hoisted to the surface

Top of 90-foot vertical shaft on north side of Houston ship channel. Pipe lines will pass down to the bottom of this shaft and thence through a horizontal tunnel beneath the channel, emerging at the other side of the water through a similar vertical shaft. The man at the right is immediately back of the clam shell bucket used in digging out earth in sinking this concrete vertical shaft

section was placed at the top of the shaft. Along the inner edge of the construction form into which the concrete was poured, there was placed a steel bar reinforcement network, one-half inch bars being placed at 18-inch intervals both vertically and horizontally entirely around the shaft. At the top of each section the vertical bars were allowed to protrude beyond the concrete, and in that way the different sections are tied into each other with the steel connections.

Construction of Tunnel

The tunnel and the bottoms of the shafts extend 35 feet below the bottom of the ship channel, or about 75 feet below mean low tide. The shaft at the top, alongside the channel, are 12 feet above high tide and extend to minus 80 feet.

While the vertical shafts are cylindrical, the connecting tunnel extending beneath the ship channel is in the form of a horseshoe or an inverted "U," with height of eight feet and width of eight feet. Like the vertical shafts, the tunnel represents a concrete conduit, the concrete being placed between supporting forms and the inside forms being removed when the concrete hardens. Forming the floor, walls and ceiling of the tunnel, the concrete tube has a thickness of 12 inches, as compared with thickness of 18 inches for the vertical shafts.

The placing of the concrete in the tunnel is carried out immediately behind the excavating work, which is done by air spades which are handled manually. The earth which is dug out is moved back to the vertical shafts and lifted to the surface. The digging of the tunnel is consequently similar to operations in coal mining.

As a safety measure, both for workmen and the property, air locks were installed on each side of the ship channel for the tunneling from each vertical shaft. Although it was hoped that the operation of the locks would not prove necessary at any time, they were built and placed in readiness for use in event emergency calling for their use should arise.

An air lock installation was placed near the bottom of each vertical shaft, a short distance within the tunnel. The arrangement for the tunneling from each shaft included two doors, which afforded an intermediate compartment between the vertical shaft and the main body of the tunnel, in which the excavating work was carried on.

Placed in operation, the air locks would make it possible to maintain sufficient air pressure in the incomplete end of the tunnel to prevent inundation by any water which might be encountered in the excavation work. If a dangerous flow of water should break into the tunnel through the

(*Continued on page* 46)

Rapid Refinery Development Takes Place in East Texas

By H. H. KING
Staff Representative

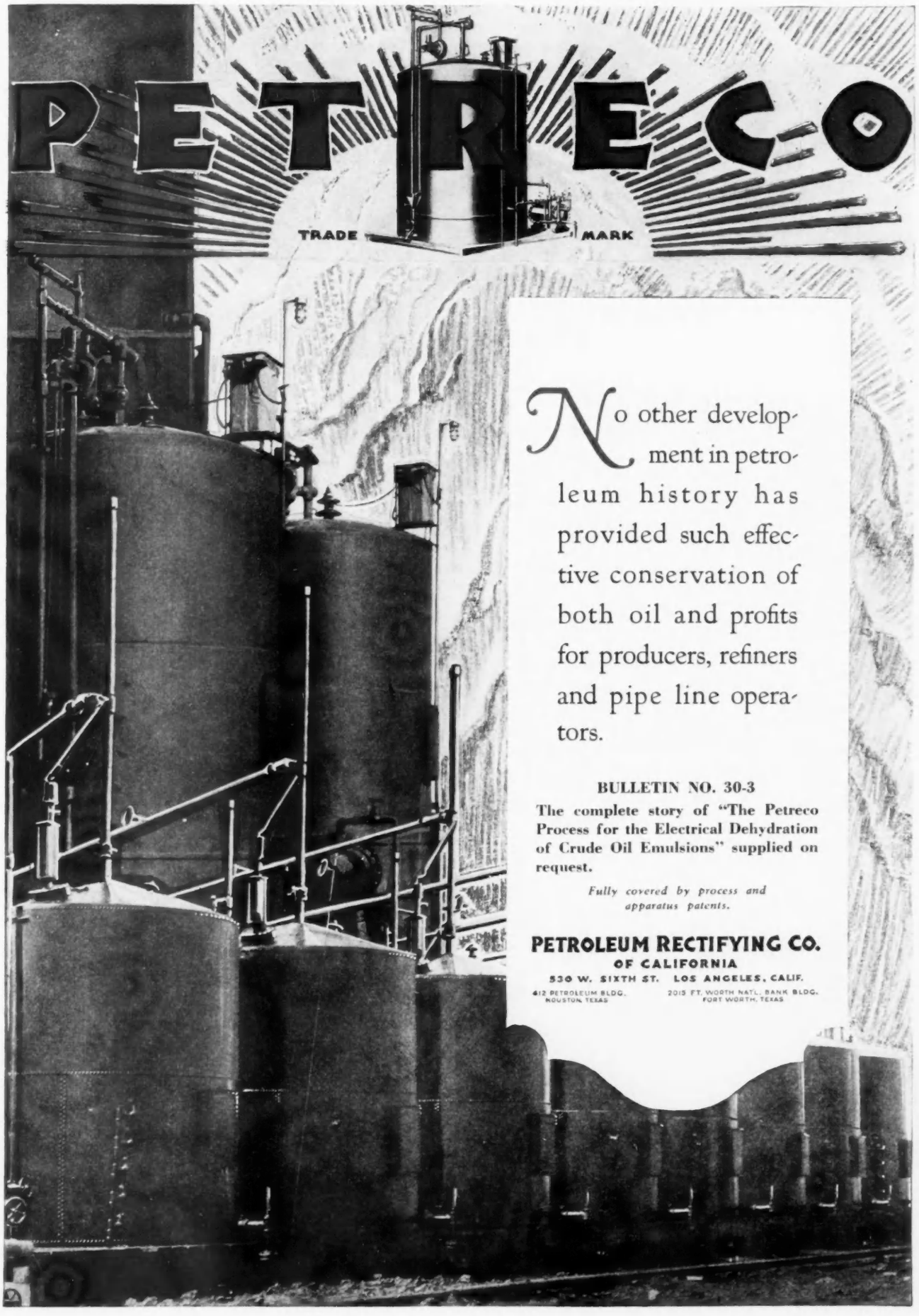
FORT WORTH, Texas.—The output of an oil field of major proportions would be required to supply the combined crude requirements of new refineries erected at scattered points over the state of Texas since the first of the year. An abundance of crude that has been obtainable literally at buyers' prices during most of the year has resulted in more plants being erected within the state during the past eight months than ever before during a single year. A survey of plant construction reveals a total of 31 plants completed, and six additional plants under construction that will have a combined maximum daily capacity of more than 100,000 barrels. These plants range from 50 to 15,000 barrels in daily capacity, and are owned by 35 separate companies and individuals that are engaging in the refining business for the first time in most instances. In addition to the above activity more than 100 miniature refineries, consisting of steel drums serving as cooking vats have been placed in service in Central West Texas to make gasoline and kerosene of a serviceable, but questionable quality.

This unusual outbreak of refinery construction had its beginning early in the year when normal markets for crude production were lost entirely, or curbed to a low level by purchasing agencies. Producers then elected to engage in the refining business, or make the oil available to those having funds to install plants, as a means of creating a market outlet. Many of these plants have adversely affected the gasoline price structure in their respective districts, and the East Texas group had developed a dominating influence over the price structure throughout the Southwest, Southeast and Middlewest at the time a complete shut-down of the East Texas field became effective August 17.

Abundance of high gravity crude that yields 36 to 40 per cent U. S. motor grade gasoline per barrel by skimming offered by the East Texas field at takers' prices proved to be a magnet for skimming plants. Plant building started early in the year, and the number had increased to 20 late in August. There were 15 plants on production when the military shut-down for the field took place. The remaining five are scheduled to be completed in September. These 20 plants have a combined capacity of 81,250 barrels daily,

Oil burning type of one-barrel refinery used in Central West Texas, showing method of gravitying fresh crude from platform to "still".

Miniature refinery of the double-barrel type, using natural gas for fuel, with vapor line leading to water barrel for condensing.



No other development in petroleum history has provided such effective conservation of both oil and profits for producers, refiners and pipe line operators.

BULLETIN NO. 30-3

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but will not be operated in the future at any daily volume approaching this level as long as proration is enforced in the field, as the production allowance of well connections available for these plants will never permit maximum operations.

East Texas plants were in line to make a rich harvest, and many of those on full time operation early in August were showing net earnings that would pay out the cost of the plants within 30 days. The owner of a plant rated at 10,000 barrels daily was in line to show a net profit of $50,000 during the month of August should the crude supply have been available throughout the month. Earnings from fuel oil production of this plant were almost nothing, owing to the distressed condition of the market for this high cold test product. A few of the original plants in the district have long time fuel oil contracts with railroads ranging up to 45 cents per barrel.

Texas Panhandle's lone addition to its group of plants was largely due to the failure of Sunray Oil Corporation to attract a market outlet for its shut-in production in the Dumas field, Moore County, although a pipe line had been built into the area from Borger. The above company made a contract for Apache Refining Company, California, to build a 5000-barrel plant at Sunray (Altman) and process the crude on a flat cost per barrel. Since the completion of this plant competition has appeared on the horizon for its limited crude supply.

Failure of operators in North and Central West Texas to obtain market relief from major pipe line companies for production allowed under proration proved to be a contributing factor for the dozen small plants listed. Owners of these plants have a controlled supply of crude only in a few instances, and many will go on the inactive list should the supply become scarce and at a high price.

Ewmo Oil Corporation built its 1000-barrel plant at Hawley to provide a market outlet for production owned by the company in a nearby pool after having failed to get relief from other sources.

Refinery Construction Activity In Texas During 1931

EAST TEXAS

Company—	Daily Capacity	Plant Location	Railroad Connection
Arrow Refining Company, Fort Worth	2,500	Overton	I-GN
Beacon Oil & Refining Company, Henderson	2,500	NW Henderson	I-GN
Blue Ribbon Refining Company, Dallas	1,000*	Kilgore	I-GN
Boone Refining Company, Arp	500	Arp	I-GN
Central Refining Company, Dallas	10,000	Friar	I-GN
Citizens Refinery Company (Geo. Ames) Gladewater	800	Gladewater	T&P
Constantine Refining Company, Dallas	2,500	Overton	I-GN
East Texas Refining Company, Dallas	12,000	Longview Junc't.	Santa Fe
East Texas Refining Company, Dallas	6,000	Friar	I-GN
Gladetex Refining Company, Gladewater	750	Gladewater	T&P
Heartfield Refining Company, Shreveport	1,000*	Camps Switch	T&P
Indian State Oil Company of Texas, Dallas	1,000	Gladewater	T&P
Kilgore Refining Company, Fort Worth	1,500	Kilgore	I-GN
Overton Refining Company, Overton	3,500	Overton	I-GN
Petroleum Refractionating Corporation, Ft. Worth	10,000*	Footes	I-GN
Rusk Refining Company, Overton	3,000	Overton	I-GN
Sinclair Refining Company, Fort Worth	5,000	Gladewater	T&P
Slack Petroleum Company, Tulsa	2,500	Camps Switch	T&P
Southern Oil Refining Company, Longview	200	Reeds Switch	I-GN
Taylor Refining Company, Tyler	15,000	Tyler	Cotton Belt

CENTRAL TEXAS

Master Petroleum Company, Waco	1,000	Waco	Cotton Belt

GULF COAST

Republic Oil Refining Company, Houston	5,000	Texas City	.....

CENTRAL WEST TEXAS

Bluebonnett Refining Company, Brownwood	200	Brownwood	.....
M. D. Carson, Brady	150	Brady	.....
Echotex Refining Company, Echo	300	Echo	.....
Goss Brothers, Rising Star	50	Rising Star	.....
Mid-Texas Petroleum Corporation, Oklahoma City	250*	Eliasville	W. F. & S.
O-Bar Refining Company, Coleman	500†	Coleman	Santa Fe
Sinclair Refining Company, Fort Worth	5,000	Fort Worth	F. W. & D.
Wilson & Swain, Woodson	50	Woodson	.....

WEST TEXAS

Concho Refining Company, San Angelo	500	San Angelo	Santa Fe
Ewmo Oil Corporation, Abilene	1,000	Hawley	A. & W. V.

NORTH TEXAS

Belknap Refining Company, New Castle	150	New Castle	W. F. & S.
Norgold Refining Company, Olney	200	Olney	W. F. & S.
Seymour Refining Company, Seymour	250*	Seymour	.....
Will C. Young Refining Company, Archer City	250	Archer City	W. F. & S.

TEXAS PANHANDLE

Apache Refining Company, Tulsa	5,000	Sunray	R. I.

*Plant building.
†Re-building old plant.

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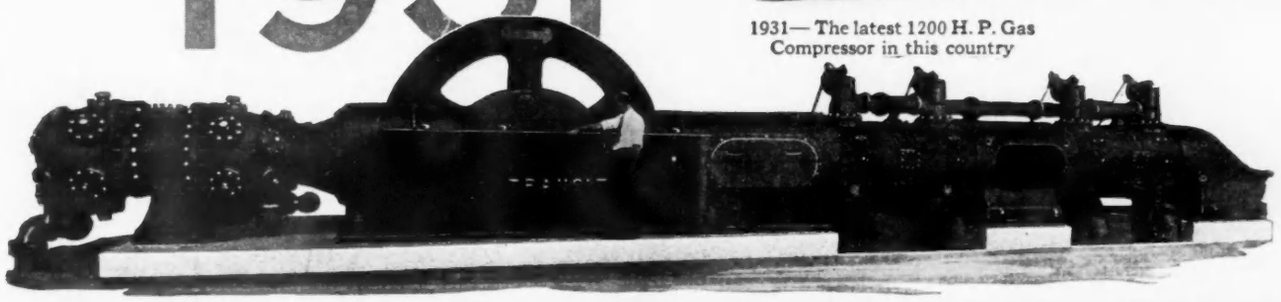
1899— The first 1000 H. P. Gas Compressor in this country

1899

1931

1931— The latest 1200 H. P. Gas Compressor in this country



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Compressor Station Built Under Difficult Conditions

IN order to distribute gas from the Borger Oil field of the Texas Panhandle to the territory from Wichita, Kansas, northeastward, Cities Service Gas Company, a subsidiary of Empire Gas & Fuel Company, lessee of the gas area, first constructed a 20-inch line from the "6666" ranch, situated on the north side of Carson county, through Wichita.

Thereafter was begun in 1927 the construction of a booster station which was built under unusual and difficult conditions.

The terrain for many miles up and down the Arkansas River, and extending to some distance on each side is level with little drainage. Under the rich surface soil is a deep strata of water bearing quick sand and gravel. Selecting a site south of the city of Wichita, Cities Service Gas Company, began construction of the plant which contains nine Cooper-Bessemer, tandem, double-acting gas engines. Five of them are 1000 horsepower twins, while the remaining four are 500 horsepower singles. These heavy engines, as well as any other massive machinery, need a sure foundation upon which to develop their maximum output of power.

Subsoil Not Solid

Exploring the subsoil, the engineers found there could not be had a solid clay or rock base for the foundation blocks, but extending down for more than 40 feet below the surface, nothing but a waterbearing sand was sounded. Piling driven into the sandy beds of rivers and creeks had been found satisfactory in constructing bridges and culverts, as well as in the sub-foundation work beneath tall buildings built upon difficult soils. Taking these things into consideration, it was decided to employ this method of building a foundation for these large engines. Driving 55, 40-foot, wood piles into the soft formation under each 500 horsepower engine, and 110 beneath each of the 1000 horsepower twin foundations, these were tied together at the head or top with inter-laced steel reinforcing. Upon and surrounding the tops of these piling was poured a solid cement mat as a sub-foundation.

The engine blocks were set directly upon the mat and over their respective set of piling, to extend upwards a sufficient distance from the mat, that basements could be provided, utilizing the mat as the basement floors, while the main floor of the engine room serves as the ceiling. This placed the engine room floor about eight feet above the surrounding country; and to level up the grounds, a dredge was employed which moved the soil and sand from a portion of the station plot, building a terrace large enough upon which to set and build all the station and auxiliary equipment. The excavated pit was utilized as a place in which the waste water from the plant could be drained, seeping back into the sandy formation below. Since the completion of the engine room to its present size, the Arkansas drainage district in that vicinity has cut a drainage canal through this pit, which permits the rapid removal of the water which usually remained on the surrounding country for some time after heavy rains.

The Wichita, Kansas, station of the Cities Service Gas Company

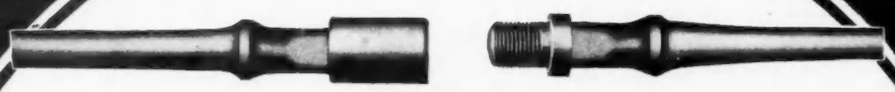
In 1927, the first units were installed to operate as boosters on that portion of the gas delivered to points beyond Wichita. Four single 500 horsepower engines were set on the foundations prepared for them in the original layout. In 1928, when the demand made upon the singles was greater than their capacity, a 1000 horsepower unit was installed. Another twin was set in 1929, and in 1930 three more twins were placed on the foundations, making a total of 7000 horsepower in operation at the present time.

Newer Types Used

These engines are the newer type with cam operated intake and exhaust valves. The lay shaft upon which the cams are placed, extends the full length of the power end of the engines, two for each twin, and one for the singles. It is driven by a drag crank placed on the outer end of the crank shaft between the connecting rod bearing and the bedplate, transmitting power to the shaft through bevel gearing. The cams are constructed so that the valve snap is eliminated; the design of the cams being such that when the valve is almost closed a cushion effect is produced which prevents the valve from hammering the seat. The exhaust valve cages are fitted with an aluminum bronze, removable seat which is not affected appreciably by the heat of the exhaust gas passing through between it and the valve head. It is readily machined; and in case of repair or replacement, it can be removed with a minimum amount of trouble.

The ignition is of the high tension type, each plug having an individual transformer coil. The low tension current is furnished by storage batteries carrying six volts. Two banks of storage batteries

NATIONAL TITAN SUCKER RODS



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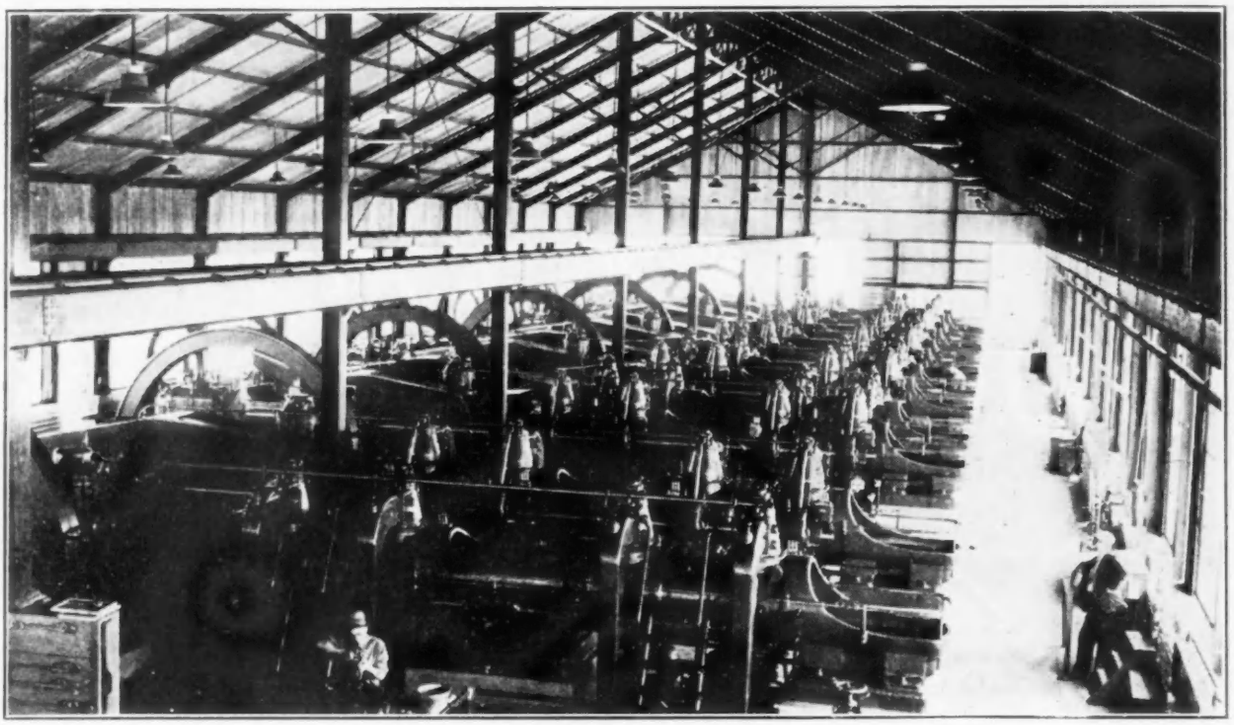


Engines in the station of the Cities Service Gas Company at Wichita, Kansas

containing six in each bank are placed in the auxiliary room, one of them being in service, while the other is maintained as a standby or emergency service unit. The current from the batteries is led through cable in conduit under the floors to individual engines. The interrupter is built in and upon the lay shaft forming a circuit breaker that operates much the same as that in an automobile. Only in this case there are no distributors carrying the high tension current to the spark plugs; the low tension current being broken between the batteries and the coil by the interrupter. As the leads from the coils, placed on brackets close to the plugs, are the same length, it is assured that the spark will occur in the cylinder at the proper instant. Both an ammeter and a volt meter are placed in the line carrying the low tension to each engine, set near the starting mechanism. If the amperage to this engine shows an abnormal load, the operator can tell that the trouble lies at an individual engine. Where as without the indicators, the leaking of the current could be great enough to blow the fuses before the operator could detect the source of the trouble.

WITH the development of the Borger oil field in the Panhandle of Texas, there was discovered the largest single gas field in the United States.

During the years of 1926 *and* 1927, *Empire Gas & Fuel Company leased that unit of the "6666" Ranch which is situated in the north side of Carson County for development of the gas under its surface.*

Little did the original owner of this property suspect that anything would ever be there but grass and cows, when he, as the legend goes, won the first of the famous ranches that were subsequently named in honor of the hand that he held in that memorable poker game years ago.

It has been told all over the cattle country that when as a young man, he with several other cattlemen while in Fort Worth, engaged in a friendly game that ran into keen interest when S. Burk Burnett drew a hand that contained four sixes. Placing his entire fortune on the outcome of it, he stayed until the show-down. His hand containing the four sixes won, giving him the nucleus of the later famous series of ranches. One of them was in Wichita County, where the major portion of the one-time boom field of Burkburnett is located; another is the 107,000-*acre ranch in the Panhandle, where so much natural gas is produced.*

Air From Power Side

Air to the fuel mixers is brought in from the power side of the building through short risers placed outside the building, one air stack for each pair of multiple cylinders. The exhaust gases are led through the individual manifolds to an exhaust pipe placed in the basement running outside the building on the compressor side of the engine room. Two lines and two stacks are provided for each twin, and one for each single. The stacks rising well above the eaves of the building close to the outer wall.

This station forms the junction point for the 16-inch line coming in from Oklahoma City, but this gas is ordinarily by-passed to Wichita and Valley Center without entering the compressor cylinders, to be reduced at the city gates from the pressure maintained on this line by the Blackwell station. The gases in the 20-inch and the surplus in the 16-inch line are received in three scrubbers set near the north end of the compressor station. These scrubbers have manifolds by the operation of which they may be cut out of service, or all three may be operated at the same time.

The common intake header is placed outside the building, from which an eight-inch line is led to each one of the 13½ by 36 compressor cylinders. This line extends to a point about midway between the compressor and the building wall, to rise with an easy bend to an eight-inch, 1000-pound,

UNUSUAL PIPE-LINE ENGINEERING ON THE PENSACOLA LINE.....

CROSSING ONE OF THE COUNTRY'S WORST SWAMPS

It was a real job, piping natural gas to Pensacola.

On the edge of one of the country's worst swamps at Bay Manette, impressive modern machinery was obliged to halt. Horses and mules were helpless. So man-power had to be employed for laying the 12-inch line over about 10 miles of its sixty-seven mile length. Part of the way, corduroy roads were built of floating logs. The same kind of joint used for river crossings was employed—the pipe was carried out and screwed on, the joint covered with a leak clamp and this in turn with a river clamp weighing 1700 pounds. Coated with enamel, and then lowered, the pipe settled into the muck. In some places, it buried itself completely. During the rainy season the line will be under six to eight feet of water.

This project, beginning near Mobile and ending at Pensacola, was an extension of one of the principal transmission lines from the Monroe and Richland fields in Louisiana—the construction being done by the Natural Gas Engineering Corporation for the United Gas Public Service Company. Besides the difficult swamp, two rivers and four bayous had to be crossed. The desirability of choosing material well, and of avoiding the possibility of interruptions to service, is well recognized in such cases. For the Pensacola Line, therefore, the choice was NATIONAL—

America's Preferred Pipe for Oil and Gas Lines

NATIONAL TUBE COMPANY · Pittsburgh, Pa.
Subsidiary of United States Steel Corporation

NATIONAL PIPE

Crane gate valve. From the flange of this gate, the intake line describes an arc of 180 degrees, flanging to the top of the cylinder. The intake pressure is normally about 170 pounds, while the discharge pressure runs to an average of 400 pounds. The gas leaves the discharge stool of the cylinder through an eight-inch line set at an angle of 45 degrees, running outside to a line extending to the after coolers. These coils are placed over a continuous shallow pit, one section for each compressor cylinder. They are constructed of four-inch pipe, five banks wide by eight runs in height connected to both a common intake and discharge header. After cooling, the gas is passed to 19 high pressure absorbers where the gasoline content is removed. This is done to prevent possible fluid pockets to form in low spots in the line and to furnish a better burning fuel. Leaving individual absorbers, the gas is led back into the main line on the down stream side to continue on its way.

Four Water Wells

Water for cooling engine jackets and compressor cylinders together with the after coolers, is produced from four wells on the premises, coming from the water-laden quick sand. It is lifted to the surface by electric motor-driven, deep well pumps, to flow directly to the after cooling coils, flowing as it is pumped from these wells into distributor troughs placed directly over each bank, trickling down over the series without spraying. The warmed water from the pit is picked up by a battery of eight-inch Goulds centrifugal pumps. These four pumps are placed in a basement of the auxiliary room and are driven by 25 horsepower General Electric motors. Each pump will deliver 625 gallons per minute to the engine room service tank placed on a tower near the building. From this tank, the water flows by gravity to the jackets of the power and compressor cylinders, as well as through the hollow power piston rods. When once used through the engines the water is allowed to flow to the drainage canal to waste.

Sufficient water is produced from an apparently inexhaustible source in the quick sand that it was deemed inadvisable to use the water more than one time. First, because of the added expense created by the installation of additional pumps and cooling towers, and second, that if used more than once, the concentration of the natural hardness of the water would cause scale to be deposited inside the jackets of the cylinders. And, too, the water is almost constantly at a temperature of 65 degrees coming from the wells both summer and winter; a temperature difficult to attain in hot weather with any cooling system.

Main Building of Steel

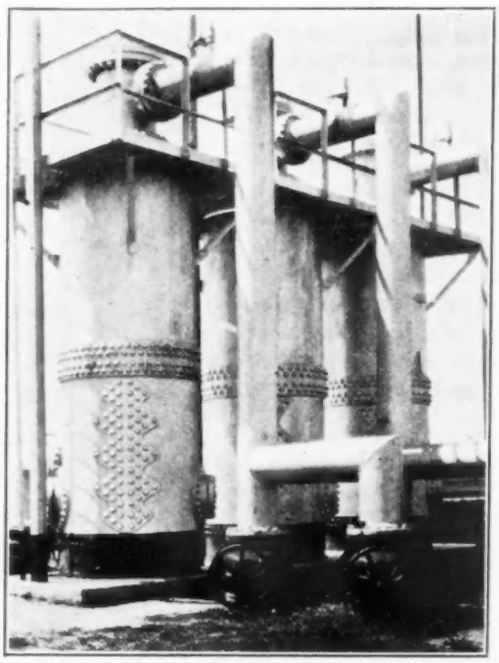
The main building which houses the compressors is constructed of steel, covered with the usual corrugated iron sheathing. Upon the building foundation and extending up to the window sills, the walls are constructed of brick. But, as the entire floor can be felt to tremble slightly when the engines attain a comparative synchronous movement, it was deemed best not to build the brick wall above the window ledges. However, the movement of the monolithic mass does not affect the smooth operation of the engines, nor does it cause leaks in the piping around the building.

To facilitate repairs when needed, two cranes were built in the station as permanent equipment. Tracks running from one end of the building to the other, place the heavy chain hoists at any point in the building where heavy lifting is necessary. Sump pumps were placed in the basement to remove the infiltrated water, and the water which may overflow from the engines or used in washing the floors. These are steam reciprocating pumps set near the stairway entrances to the basement. Three openings were provided to enable the operators to reach the basement. Vapor proof lighting switches are placed at the head of the stairway near the end of the hand rail so the operator may turn on the basement lights when about to descend. Tools and some spare parts are stored in the basement.

Auxiliary Room Available

The auxiliary room contains besides the four water pumps, four 80 horsepower, Cooper Bessemers driving Allis-Chalmers 440-volt three-phase generators, with which power is generated for plant and yard lights, pumps, both in the building and at the water wells. They also furnish electricity for the gasoline plant of Empire Oil & Refining Company, built across the drainage canal. Two motor-driven, two-stage Ingersoll-Rand air compressors are set in one end of the auxiliary room to furnish air with which the engines are started.

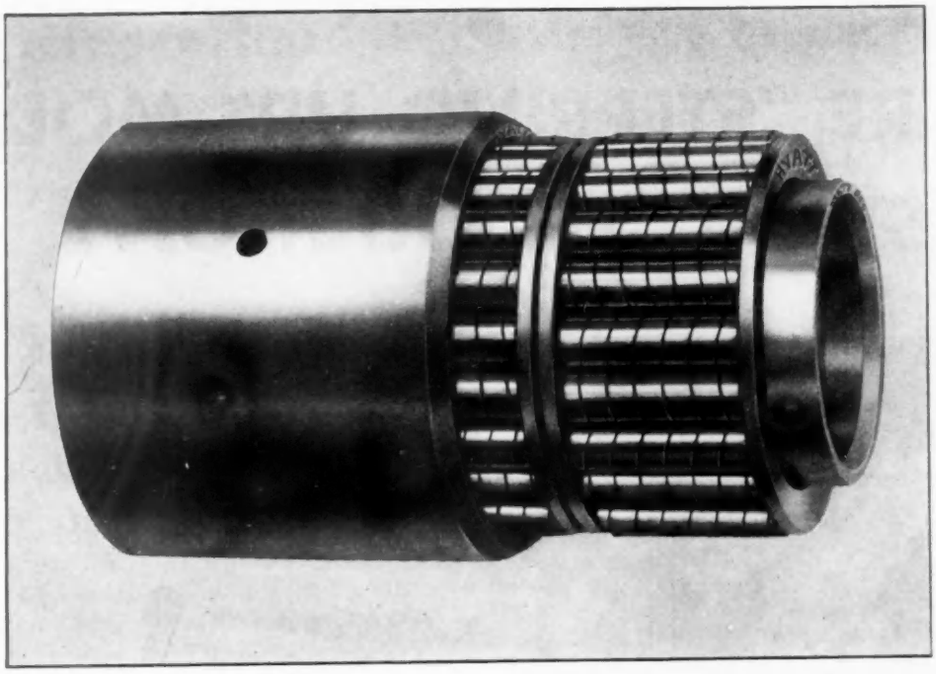
The grounds about the plant are being sodded to grass, and the operators have planted shrubs and flowers near the buildings. Inside, all the brass fittings are kept glistening by frequent polishing. The engines themselves with the auxiliary equipment are kept free from accumulated dust and oil by constant attention by the men on duty.



Three scrubbers in Wichita station of Cities Service Gas Company. Each scrubber weighs twelve tons

The operation of the plant is quite economical, having a record of 8 3/10 cubic feet of gas consumed per horsepower hour. This includes the gas used by the auxiliary equipment, but charged to the compressor engines. The oil consumption is quite low, being only .0001 gallon of oil per horsepower hour, a part of which is also used by the auxiliary equipment, but charged to the large engines.

The entire plant is operated through orders given by the Bartlesville traffic office. Close contact is maintained at all times with the dispatcher who informs the station superintendent when to start additional engines, or when to shut one down. If the demand is large at the delivery point, all engines are run at full load and at top operating speed. During the extremely cold weather in the winter of 1930, the engines were operated at 125 per cent capacity for about 45 days without a shutdown.



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Vital positions in mechanical equipment must be protected. Misalignment . . . friction . . . and wear must be permanently barred to guard against repeated tie-ups for repairs. Hyatt Roller Bearings provide this kind of protection for many years.

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Everywhere . . . on railroads and in manufacturing plants, in automotive, agricultural, mining, construction and oil well equipment . . . Hyatts are giving satisfaction and effecting economies where they are least expected. You wouldn't expect less of Hyatts. Hyatt Roller Bearing Co., Newark, Detroit, Chicago, Pittsburgh, Oakland.

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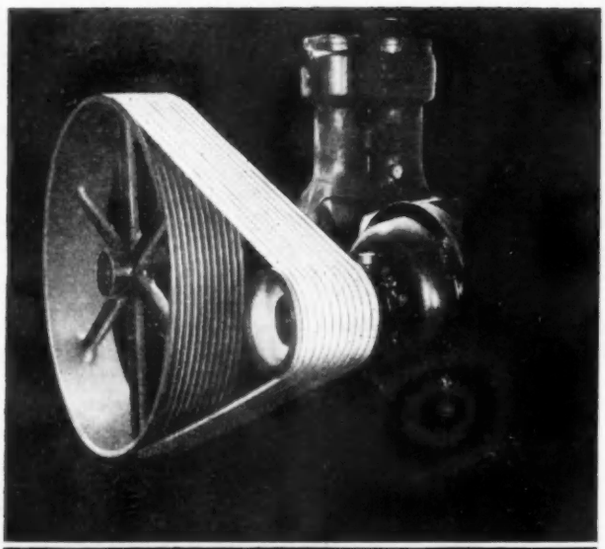
WE ARE "STEPPING UP" MODERN INDUSTRIAL PRODUCTION!



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THE SUPERIORITY OF DAYTON COG-BELT DRIVES IS DUE TO THESE OUTSTANDING ADVANTAGES FOUND IN DRIVES OF NO OTHER TYPE

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DAYTON COG-BELT DRIVES

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Never has a more important V-Belt feature been introduced in America than cog construction. This revolutionary improvement has given Dayton Belts extreme flexibility at high speeds and has eliminated heating and distortion. Longer life, higher efficiency and greater economy are the notable results.

These remarkable belts are also easier on machinery than ordinary belts. They're die-cut. They fit the pulley grooves more accurately, run true, grip more firmly with less tension and wear on bearings. Operating on short centers, without idlers, they take up less floor space and eliminate vibration.

But these bare facts give only a hint of the importance of the complete Dayton story. We want you to hear it all. Our engineering department is at your service.

Send for a Dayton Cog-Belt Catalog and sample section of the belt—today.

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1-13

Dayton
COG-BELT DRIVES

Markets • Production • Crude Prices

H. J. STRUTH, ***Staff Economist, Houston, Texas***

Decline in Production Is Nucleus for Better Market

There is nothing dignified about the term "whoopee" but when crude oil production drops 857,700 barrels, as it did last week, bringing the daily average production curve to the lowest point in a number of years, the expression is difficult to withhold. Hence, the insertion "whoopee" on the crude production chart appearing in this section, which emphasizes the lack of space in which to show the full extent of the slide of the production curve to a new low level of 1,750,550 barrels a day.

Complete shut-down in all East Texas wells under martial law was responsible for the meteoric drop in daily average crude production of the United States. Not a barrel of oil was produced last week in East Texas, whereas the daily average of that area for the preceding week amounted to 848,450 barrels! This, with additional declines in production of all major fields resulted in a total production decline of 857,700 barrels a day. The only increases reported last week were a gain of 1700 barrels in the Eastern States and a gain of 2800 barrels in the Rocky Mountain States. Texas reported a decrease of 841,900 barrels, California, a decline of 9500 barrels; Oklahoma production dropped 4000 barrels, while Kansas reported a decrease of 4450 barrels. Other producing areas reported declines of from 100 barrels to 700 barrels a day. This marks the greatest slump in crude oil production in the history of the petroleum industry; a decline of more than 6,000,000 barrels in one week!

Coincidentally, last week's production level represents an inverted picture of what happened to the production curve during the same week of 1929. The chart shows that production of crude oil in the United States reached its all-time peak during the week ending August 31, 1929, when the daily average attained a rate of 2,973,450 barrels. In contrast, last week's daily average production amounted to 1,750,550 barrels; a decline from the peak of 1,222,900 barrels a day. In a measure, this shows what might have happened by this time if East Texas development had been delayed until the present time. Had the industry allowed all flush producing areas to flow unrestricted, say, since the summer of 1929, the production picture would probably have appeared as it did last week with the elimination of East Texas by martial law. Economic law would probably have precipitated low crude prices during the summer of 1930 and subsequent declining production to the level temporarily attained last week would, by reason of a rising price structure, furnished an incentive to the discovery and development of East Texas.

While last week's production level will not prove to be more than a derailment, it is obvious that its effect will prove of more than momentary influence upon the economic situation. Through its effect of withholding from market channels a total of more than 6,000,000 barrels of oil, the industry is benefitted in numerous ways. With refineries running on an average of about 2,500,000 barrels of crude daily, necessitated by reason of a fairly good demand for gasoline, it is apparent that stocks are being drawn upon to the extent of only slightly less than a million barrels a day. Then too, the arresting of production in East Texas has also had the effect of indirectly improving the gasoline situation; namely through the temporary shutting off of gasoline supply from this source. On the whole, it is definitely assured that the sharp decline in crude production, although of a temporary nature, will have a far-reaching, beneficial effect upon the general statistical position of the industry.

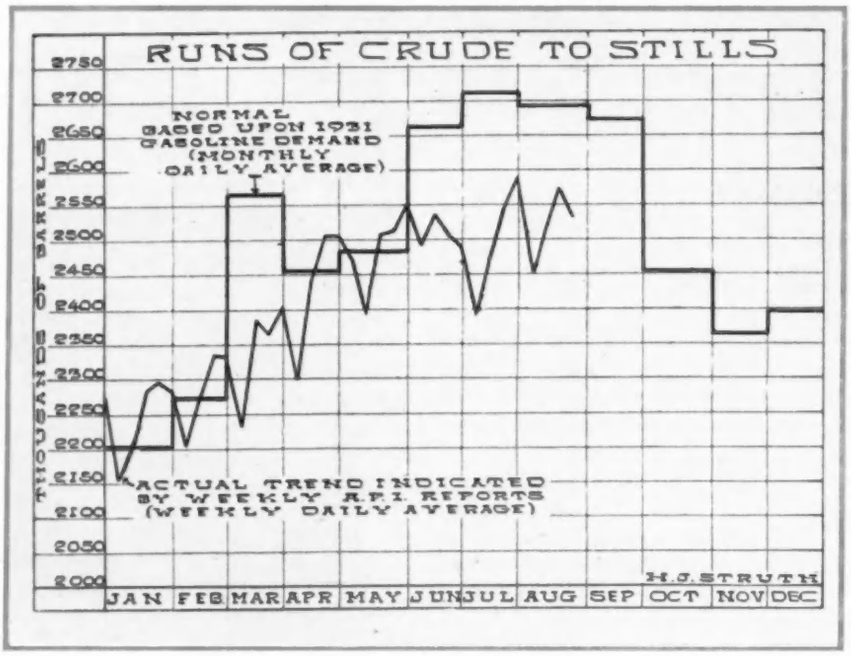
All sections of the United States have been directly or indirectly benefitted by the sharp decline in last week's crude production. California operators are already beginning to experience a better outside demand for crude and stand an equal chance with Mid-Continent producing areas of receiving higher prices for their oil. Everything depends upon the success of the new conservation order of the Texas Railroad Commission. Once it has been definitely ascertained what is to be expected of East Texas, there will undoubtedly develop a market move that will benefit the industry as a whole. If the new proration order for East Texas is successful, as is generally conceded, there will probably be a further upward movement in the Mid-Continent crude price structure, followed by higher crude prices in all parts of the United States.

Refinery Stabilization Improves Market Outlook

Refinery runs to stills have apparently become stabilized at about 2,500,000 barrels daily, despite the fact that the demand for gasoline continues to effect a sharp reduction in stocks. Report of the American Petroleum Institute for the week ending August 29 shows that gasoline stocks declined again, to a total of 33,250,000 barrels. This compares with stocks of 34,068,000 barrels at the end of the preceding week. While gasoline stocks have shown a steady decline since the week ending May 9, a decline that amounted during that period to a total of 12,560,000 barrels, runs to stills have been maintained at an average of about 2,500,000 barrels. This indicates that the refining industry has made marked progress in exercising control over its operations and shows that every effort is being made to prevent the manufacture of surplus supplies of gasoline.

That stabilization of refinery still runs at around 2,500,000 barrels daily is rapidly correcting the refined oil statistical position is evidenced by the marked reduction in stocks as pointed out above. In fact, gasoline stocks have already been reduced from the peak of this year to the extent of 14,194,000 barrels. Under such conditions it is not surprising to find that the gasoline market structure is showing strength. By maintaining refinery operations at their present level, the industry has materially corrected the former top-heavy gasoline situation and has effected a decidedly hopeful outlook for the balance of this year. Unless all signs fail, the refined oil market outlook is considerably brighter than it was even a month ago and the events now taking place marketwise are undoubtedly laying the ground-work for a vastly improved economic situation for next year.

MARKET SECTION



California Market Profiting From Shut-Down in East Texas

California is beginning to benefit by the curtailment in East Texas and Oklahoma. Gasoline shipments for immediate and future delivery have increased materially during the past 10 days. The number of idle tankers has been so large that no trouble was experienced in mustering extra ships to handle the cargoes. Reduction in spot gasoline and crude shipments from certain Mid-Continent districts has turned the attention of wholesale consumers and distributors on the Atlantic seaboard to California. Gasoline prices have stiffened somewhat, but are still below the average of two years ago, when more normal conditions prevailed.

Crude oil has also been in slightly better demand, due to the increased movement of gasoline. The large stocks of crude oil in California insure future delivery of fuel oil and gasoline to districts which might have trouble in getting the anticipated supply from the Gulf and Mid-Continent points.

Crude Runs to Stills, Gasoline Stocks and Gas and Fuel Oil Stocks

Week Ending August 22, 1931

(Figures in barrels of 42 gallons)

District—	Potential Capacity (Daily) Total	Potential Capacity (Daily) Reporting	Per Cent	Crude Runs to Stills Total	Daily Average	Per Cent Operated	Gasoline Stocks (see note below)	Gas & Fuel Oil Stocks
East Coast	633,700	633,700	100.0	3,131,000	447,300	70.6	5,086,000	10,959,000
Appalachian	149,600	137,400	91.8	780,000	111,400	81.1	1,271,000	1,470,000
Ind., Ill., Ky.	436,300	431,500	98.9	2,334,000	333,400	77.3	5,169,000	4,280,000
Okla., Kans., Mo.	485,700	435,200	89.6	2,158,000	308,300	70.8	2,477,000	5,167,000
Texas	838,200	765,400	91.3	3,760,000	537,100	70.2	6,587,000	11,317,000
Louisiana-Arkansas	233,100	230,500	98.9	1,295,000	185,000	80.3	707,000	3,224,000
Rocky Mountain	159,400	142,300	89.3	401,000	57,300	40.3	1,334,000	821,000
California	912,500	880,100	96.5	3,350,000	478,600	54.4	*11,437,000	97,567,000
Total Week Aug. 22	3,848,500	3,656,100	95.0	17,209,000	2,458,400	67.2	34,068,000	134,805,000
Total Week Aug. 15	3,848,500	3,656,100	95.0	17,477,000	2,496,700	68.3	34,534,000	134,860,000
Total Aug. 23, 1930	3,686,400	3,525,400	95.6	17,861,000	2,551,600	72.4	39,842,000	139,966,000
The Texas and Louisiana Gulf Coastal figures shown below are included above in the totals of their respective districts.								
Texas Gulf Coast	532,500	531,500	99.8	2,836,000	405,100	76.2	5,472,000	7,991,000
Louisiana Gulf Coast	147,500	147,500	100.0	869,000	124,100	84.1	595,000	2,152,000

NOTE: In all the refining districts indicated except California, figures in this column represent gasoline stocks at refineries. In *California, they represent the total inventory of finished gasoline and engine distillate held by reporting companies wherever located within Continental United States—(stocks at refineries, water terminals and all sales distributing stations, including products in transit thereto).

MARKET SECTION

HOW LAST WEEK'S DAILY AVERAGE PRODUCTION COMPARES WITH NECESSARY AND NORMAL QUOTA LIMIT

State—	Indicated Demand Third Quarter 1931	Economic Limit Third Quarter 1931	Daily Average Last Week	Daily Excess Last Week	Daily Average Since January 1	Daily Excess Since January 1†
Arkansas	63,000	60,000	37,300	—22,700	45,965	—10,035
California	525,000	487,500*	505,800	18,300	527,456	31,656
Kansas	127,000	120,000	99,550	—20,450	107,054	—5,946
Louisiana	85,000	75,000	53,150	—21,850	64,703	—9,297
Oklahoma	593,000	550,000*	265,850	—284,150	497,997	8,703
Texas	860,000	797,000*	585,050	—211,950	885,804	174,104
Balance of U. S.	275,000	260,000	204,850	—55,150	206,395	—35,305
Totals	2,528,000	2,349,500	1,750,550	—597,950	2,335,374	153,880

*Allowable.
†Excess based on allowable to date.

The retail gasoline situation has been improved, but price cutting is still practiced in most sections. Many of the stations which had been most persistent price cutters are now selling at, or near, the highest current posted price. The average retail price is fully one cent higher than it was a month ago.

Production is back to within a stone's throw of 500,000 barrels. Kettleman Hills has been over its allowable, but is now nearly within the allotment. Some of the best wells in the field have been reduced to a fraction of their rated potential. This field represents the only threat in California, and it appears well in hand at the present time.

California crude prices should hold their present level with little difficulty. Even higher prices might accompany a reduction of state production to the basic allowable of 487,500 barrels. Higher Mid-Continent prices have acted as a tonic to California, although the actual physical improvement has been slight.

Cracked Gasoline Production

Week Ending Aug. 22, 1931

(Barrels of 42 gallons)

District	Potential Cracking Capacity (Daily) Total	Reporting	Per Cent	Production Total	Daily Average
East Coast	261,300	236,300	90.4	639,000	91,300
Appalachian	56,300	54,100	96.1	179,000	25,600
Ind., Ill., Ky.	330,400	315,400	95.5	656,000	93,700
Okla., Kans., Mo.	237,800	219,500	92.3	434,000	62,000
Texas	450,800	436,200	96.8	853,000	121,800
Louisiana-Arkansas	112,400	112,400	100.0	228,000	32,600
Rocky Mountain	99,100	97,600	98.5	96,000	13,700
California	190,800	190,800	100.0	265,000	37,900
Total week Aug. 22	1,738,900	1,662,300	95.6	3,350,000	478,600
Total week Aug. 15	1,734,900	1,652,300	95.2	3,285,000	469,300
Total week Aug. 23	1,589,200	1,334,900	84.0	2,677,000	382,400
The Texas and Louisiana Gulf Coastal Figures Shown Below are included above in the totals of their respective districts.					
Texas Gulf Coast	352,400	347,400	98.6	668,000	95,400
Louisiana Gulf Coast	77,000	77,000	100.0	162,000	23,100

Imports of Petroleum

(Barrels of 42 gallons)

	Week Ended August 22	Week Ended August 15
AT ATLANTIC COAST PORTS—		
Baltimore	69,000	443,000
Boston	.....	66,000
New York	678,000	944,000
Philadelphia	227,000	167,000
Others	60,000	(A) 325,000
Total	1,034,000	1,945,000
Daily Average	147,714	277,857
AT GULF COAST PORTS—		
Galveston District	.....	64,000
New Orleans and Baton Rouge	.....	.....
Port Arthur and Sabine District	.....	.....
Tampa	.....	40,000
Total	.....	104,000
Daily Average	.....	14,857
AT ALL UNITED STATES PORTS—		
Total	1,034,000	2,049,000
Daily Average	147,714	292,714
Daily Average Four Weeks Ended	190,857	211,893
Distribution of Total Imports Is As Follows:		
Crude	815,000	(A) 490,000
Gasoline	60,000	664,000
Gas Oil	.....	61,000
Fuel Oil	159,000	(A) 834,000
Total	1,034,000	2,049,000

(A)—Revised.

California Oil Receipts

(Barrels of 42 gallons)

	Week Ended August 22	Week Ended August 15
AT ATLANTIC COAST PORTS—		
Baltimore	.....	.....
Boston	.....	.....
New York	132,000	.....
Philadelphia	115,000	115,000
Others	40,000	.....
Total	287,000	115,000
Daily Average	41,000	16,429
AT GULF COAST PORTS—		
Total	.....	.....
Daily Average	.....	.....
AT ATLANTIC AND GULF COAST PORTS—		
Total	287,000	115,000
Daily Average	41,000	16,429
Daily Average Four Weeks Ended	42,107	35,321
Distribution of Total California Oil Receipts Is As Follows:		
Gasoline	279,000	115,000
Lubricants	8,000	.....
Total	287,000	115,000

MARKET SECTION

United States Daily Average Production

1930	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
June	665,550	133,600	668,300	210,500	40,300	56,900	135,750	84,600	598,000	2,593,500	77,806,900
July	594,750	121,600	652,350	209,400	40,550	55,400	137,200	98,350	610,450	2,520,050	78,121,200
August	558,850	115,650	646,400	206,600	41,500	55,100	128,550	106,000	611,250	2,470,900	76,597,600
September	558,900	116,550	606,550	200,750	40,150	53,550	121,400	110,650	604,900	2,413,400	72,402,205
October	542,100	114,850	609,500	194,850	41,500	52,800	121,750	104,000	590,800	2,372,150	73,536,350
November	491,550	111,400	579,350	190,100	44,050	52,000	116,400	101,950	601,200	2,288,000	68,639,150
December	459,300	105,550	533,400	189,300	43,000	51,100	112,200	100,500	587,450	2,181,800	67,636,500
1931											
January	452,000	106,350	511,050	188,850	41,100	50,700	110,300	96,700	535,700	2,092,750	64,874,450
February	473,750	114,450	523,700	185,600	43,950	49,950	109,800	100,100	527,300	2,128,600	59,600,450
March	531,900	110,550	585,000	177,950	40,250	47,550	108,800	95,400	528,100	2,225,500	68,990,850
April	543,650	109,250	723,050	185,850	39,050	47,000	111,500	95,500	527,350	3,382,200	71,465,750
May	561,950	107,400	767,200	185,950	39,200	46,650	111,250	97,500	534,150	2,451,250	75,975,950
June	556,850	103,150	828,250	170,100	36,500	44,900	108,950	97,950	520,300	2,466,950	74,009,750
July	527,950	100,000	912,250	157,850	33,650	41,400	107,600	94,400	517,900	2,493,000	77,282,700
August 1	425,250	99,750	1,046,800	152,500	32,550	38,650	108,550	92,600	504,200	2,500,650	17,504,550
August 8	421,400	102,100	1,102,100	154,650	31,450	38,300	105,800	94,650	505,000	2,555,550	17,888,850
Aug. 15	264,500	102,850	1,188,350	154,650	30,650	37,400	109,850	93,250	517,000	2,498,500	17,489,500
Aug. 22	269,850	104,400	1,297,950	153,200	29,750	37,450	109,950	90,400	515,300	2,608,250	18,257,750
August 29	265,850	99,950	456,050	152,500	29,650	37,300	111,650	93,200	505,800	1,750,550	12,253,850
Increase	.....	.....	.....	.....	.....	.....	1,700	2,800	.....	.....	.....
Decrease	4,000	4,450	841,900	700	100	150	.....	.....	9,500	857,700	6,003,900

Last Week's Daily Average Production by Districts

TEXAS	Aug. 29	Aug. 22
Panhandle	59,000	57,800
North Texas	55,150	55,500
West Central Texas	23,150	22,750
West Texas	206,050	204,450
East Central Texas	53,950	51,550
East Texas	Shut Down	848,450
Southwest Texas	58,750	57,350
Texas Gulf Coast	129,000	130,750
Total Texas	585,050	1,428,700
OKLAHOMA	265,850	269,850
CALIFORNIA	505,800	515,300
KANSAS	99,550	104,400

LOUISIANA	Aug. 29	Aug. 22
North Louisiana	29,650	29,750
South Louisiana	23,500	22,450
Total Louisiana	53,150	52,200
ARKANSAS	37,300	37,450
MOUNTAIN STATES		
Wyoming	38,000	35,500
Montana	7,900	7,850
Colorado	4,000	3,950
New Mexico	43,300	43,100
Total Mountain States	93,200	90,400
EASTERN STATES	111,650	109,950
TOTAL UNITED STATES	1,750,550	2,608,250

Summarized Review of Field Results

State—	Completions This week	Completions Last week	Oil Wells This week	Oil Wells Last week	Gas Wells This week	Gas Wells Last week	Failures This week	Failures Last week	Initial Prod. This week	Initial Prod. Last week
Arkansas	0	1	0	0	0	0	0	1	0	0
California	8	8	6	6	0	0	2	2	17,426	24,898
Illinois	0	1	0	1	0	0	0	0	0	20
Indiana	0	8	0	1	0	3	0	4	0	5
Kansas	14	11	5	4	6	6	3	1	5,355	7,925
Kentucky	5	1	2	1	0	0	3	0	33	70
Louisiana	4	4	2	2	1	1	1	1	3,460	1,312
Michigan	3	0	1	0	2	0	0	0	20	0
Mississippi	2	0	0	0	0	0	2	0	0	0
New York	0	1	0	0	0	0	0	1	0	0
Ohio	13	20	3	2	7	15	3	3	40	6
Oklahoma	10	5	4	1	4	1	2	3	7,210	675
Pennsylvania	6	14	0	4	5	6	1	4	0	10
Texas	85	86	71	64	0	1	14	21	499,160	408,124
W. Virginia	6	1	0	1	4	0	2	0	0	5
Total	156	161	94	87	29	33	33	41	532,704	443,050
Increase this week	..		7		..		..		89,654	
Decrease this week	5		..		4		8		.....	

Comparison of Permits Granted for New Wells

State—	Week Ending Aug. 29	Previous week	This week 1930	Total this month	This month 1930	Total this year	Total this date last year	1930 year total
Arkansas	1	0	2	3	6	26	66	108
California	9	3	16	19	101	258	572	922
Louisiana	11	0	16	23	94	222	715	948
Kansas	9	9	11	37	93	320	720	944
Oklahoma	3	6	44	19	216	570	2,196	2,830
Texas	154	145	176	514	605	3,998	5,424	7,052
Totals	187	163	265	615	1,108	5,394	9,693	12,804

MARKET SECTION

After East Texas, What? Is the Big Question in Oklahoma

TULSA.—After East Texas!

That seems to be the status of affairs in Oklahoma crude oil circles. With William H. Murray, Oklahoma Governor, still issuing statements, oil producers are now asking.

"How long after East Texas?"

Other than Phillips Petroleum Company, there is still no dollar oil in the Mid-Continent. Other purchasers have given no intention of what they will do since prices were advanced last week. But the Oklahoma Governor issued one statement to the effect that several buyers had agreed to pay a dollar a barrel for Mid-Continent oil and that only Sinclair Refining Company stood in the way of such a price.

Rather caustic words were used when the Governor expressed his opinion of Harry F. Sinclair. Sinclair was charged with lying low in Oklahoma while trying to break down constructive movements in Texas. He warned both producers and the public to beware of Sinclair.

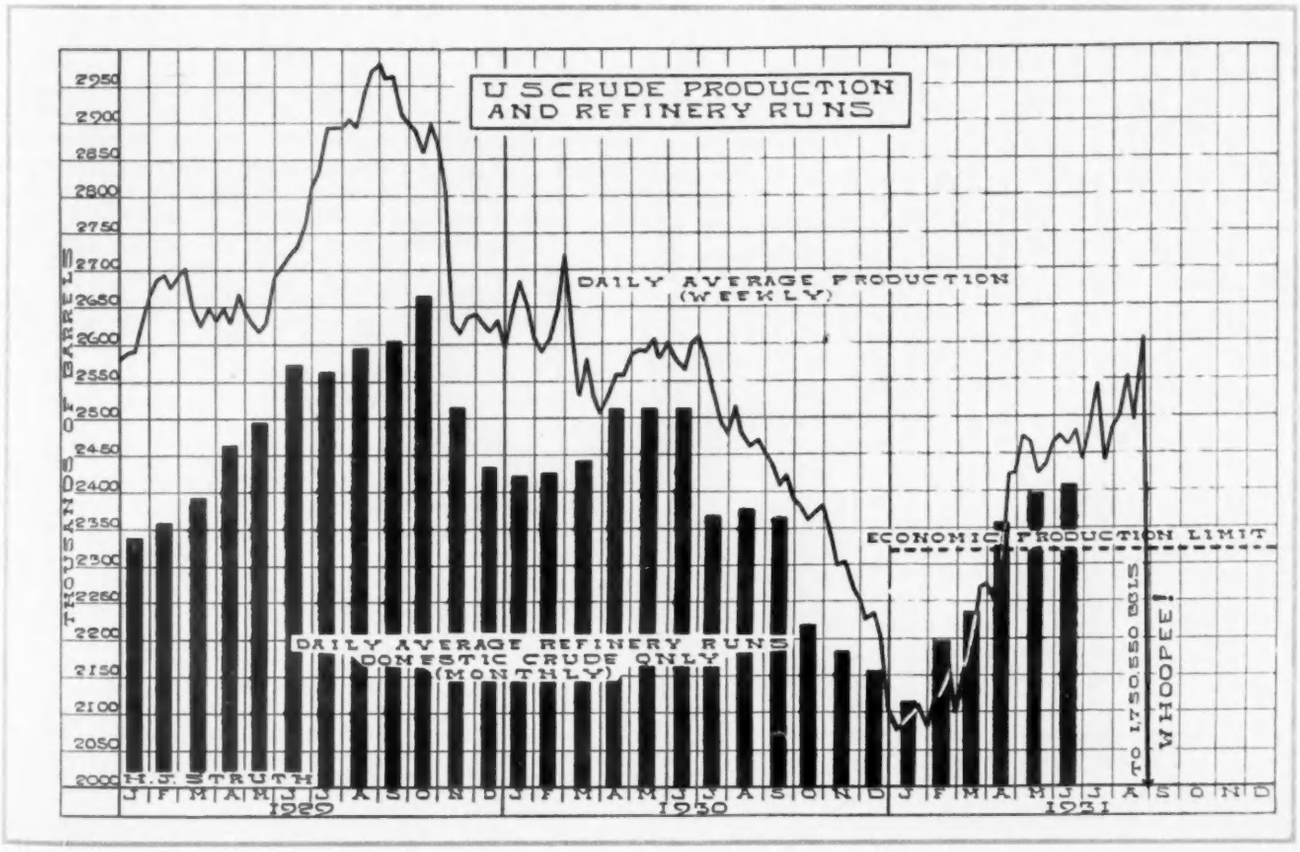
Since Sinclair interests are equipped to take substantial amounts of oil from only one field, Oklahoma City, the warning of the Governor lost much of its effectiveness when analyzed. Producers know that dollar oil could become a reality without any sort of posting by Sinclair Refining Company. In fact they are convinced that a price schedule with a dollar as the top price shortly would find all buyers, Sinclair included, paying on that basis.

Threats of the Okahoma Governor concerning future methods of enforcing proration would seem to be the indefinite obstacle that oil purchasers hesitate to hurdle. The unitization of prorated oil fields by producing sands is one obstacle. A regulation requiring a meter for each producing well is another problem. While possible changes in the personnel that will enforce proration comes as another obstacle about which there is both fear and doubt.

Proration By Sands.

Governor Murray two weeks ago stated that before the Oklahoma fields, now under martial law, would be reopened that an order would come from the Corporation Commission designating each of the four producing horizons of the Oklahoma City field as a unit. By that he would designate the Wilcox sand, for instance as a unit. Then oil taken from but a few wells in the Wilcox would be prorated to all wells in that sand. That, he said, was the only method of taking advantage of a higher posting for crude oil.

Furthermore, he said, that a meter would be specified for each prorated well. The need for that was predicated on



MARKET SECTION

his statement to the effect that there had been "cheating" in the prorated fields. He said he had had his investigators in the Oklahoma fields in overall disguise and that they had found proof that proration had not been fairly upheld.

From that producers have come to believe that there will be a change in the umpire system, which has prevailed for several years. Under the old scheme the umpires have been paid by oil companies, although they were agents of the corporation commission. The Oklahoma Governor has scored this as an improper system. He has said that the umpires will be named by the corporation commission and that the oil companies will be taxed to pay the cost of enforcement.

Charles West, the first attorney general of Oklahoma, is being mentioned as the next umpire of proration in Oklahoma.

So far all of this is merely talk with much speculation after each outburst from the capitol. Gasoline prices took an upturn in Oklahoma last week, so Paul Walker, chairman of the Oklahoma Corporation Commission, issued a statement to the effect that gasoline prices might come under the scrutiny of the commission. At that time one distributor had increased prices in Tulsa and others were expected to follow. But others did not follow and the one which posted the increase marked prices down to the old level.

As for "how long after East Texas?" indications point to a date after September 11 as the turn for Oklahoma oil affairs. Representatives of the conservation departments of the oil producing states will meet in Oklahoma City September 11 with representatives of the concerns which are known as importers of oil. At the same time the Oil States Advisory Committee has been called for an Oklahoma City meeting.

The situation in East Texas will have reached a level prior to September 11. Whatever price adjustments the new Texas order will bring should be posted prior to that time. After the conservation officials have their conference with importers in an effort to strike a balance between foreign and domestic production, it may be that the Oklahoma Corporation Commission will be called upon to write some new orders, one for unitization of a novel sort, another to meter each prorated well, another to name new umpires and provide for their pay.

A petition for these changes may come on the initiative of the Oklahoma Corporation Commission. Or the Oklahoma Governor may issue one of his executive orders, directing the commission to hold a hearing on the questions. However the matters come before the corporation commission, strenuous objection is due to come from certain elements of oil producers. Some are known to favor the unitization of oil fields by producing sands. Others, however, still cling to the old theory that a producer fortunate enough to drill a well capable of flowing a thousand barrels each day, is not obligated to divide his surplus with a neighbor whose well makes only 100 barrels a day.

A hearing such as the Oklahoma Governor has indicated will result in much testimony being introduced by proponents as well as opponents of such changes. It will take several days to complete the hearing.

So the situation in Okahoma may not be known until "a long time after East Texas."

Gasoline Fails to Gain Despite Crude Situation

Market conditions remained unchanged over the week in Mid-Continent crude oil circles. Prices fixed last week carried over. Only Phillips Petroleum Company is paying $1 a barrel for oil in Oklahoma and Kansas. In Oklahoma the quotation of this company has brought no change in field output which is under martial law restriction. In Kansas, however, the Public Service Commission has modified its order concerning the Ritz-Canton field to allow Phillips Petroleum Company to take some oil.

Failure of the gasoline market to rise further is causing some wonder concerning the rumors that independent refiners are soon to be without crude oil. Gasoline quotations are where they were a week ago. Some gasoline in transit, however, is not being sought as eagerly as was anticipated. Some refiners said last week that this week would force them to shut down part of capacity unless there was a change in field output for Oklahoma. But it seems now that the few concerns which are without crude oil will find it possible to operate cracking units on reserve gas oil.

Refiners have been guarding gas oil for several weeks. Buyers in the Oklahoma market for this product two weeks ago could not find supplies sufficient to meet needs.

With martial law in control of crude oil output and political moves expected for the early changes, the crude oil situation in the Mid-Continent, especially Oklahoma, has ceased to be an affair of economics. The whole question is tied up in what moves are made in the state house at Oklahoma City.

Oklahoma Buyers Propose "Technical" Dollar Price

Re-instatement of the price postings in Oklahoma for the higher gravities of crude to command a maximum quotation of $1.00 per barrel for 44 gravity and above is believed to be under consideration by major companies in order to literally fulfill Governor Murray's demand for dollar oil. Since the closing in of the Oklahoma City field many major purchasers have been forced to draw heavily on crude storage that represents an inventory loss when refined and disposed of at prevailing refined market prices, while the available storage supply for some of these large buyers is being rapidly depleted.

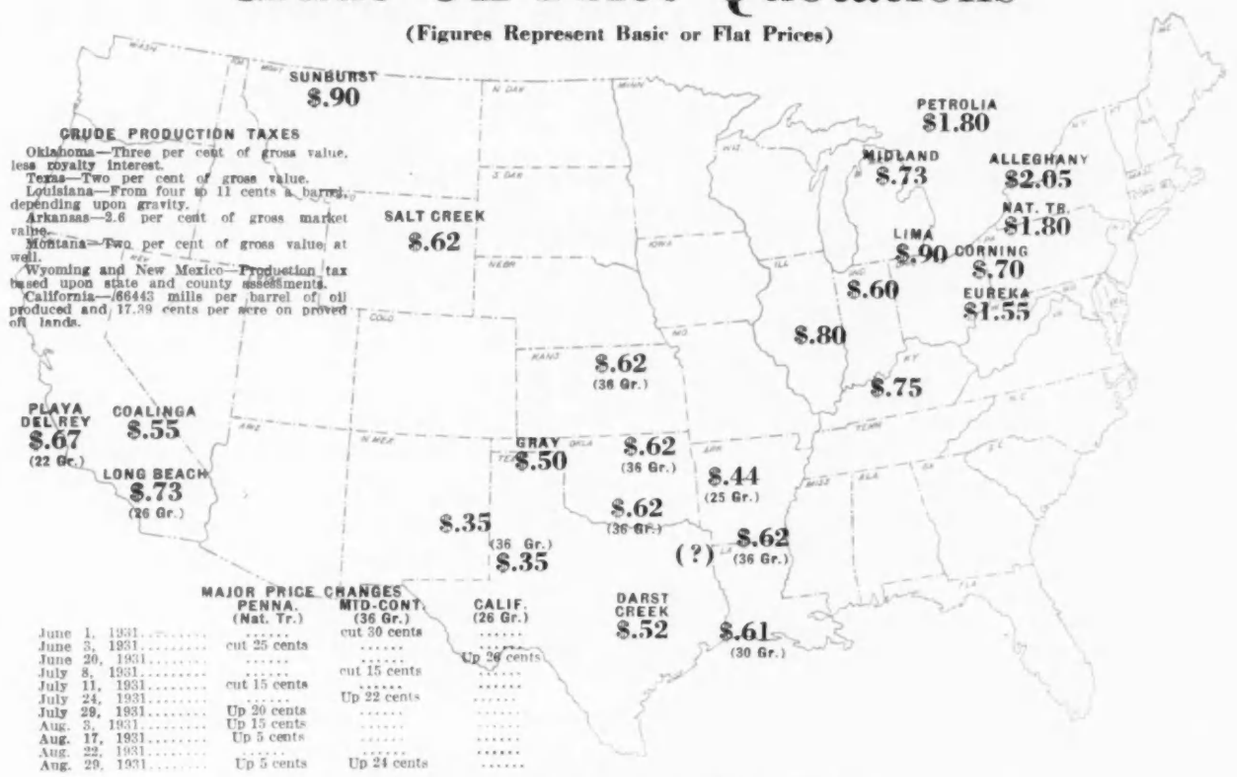
Using a price differential of three cents for each gravity, a top quotation of $1.00 per barrel for 44 gravity and above would scale down to 85 cents for 40 gravity, while the average gravity for the state is slightly less than the latter figure. It is believed that a compromise could be affected with the governor on such a basis, or by using a higher price for the 44 gravity than indicated above, with a four-cent differential between grades. It has been common practice in the past to post 44 gravity and above scheduled, with differentials ranging up to five cents per barrel.

CRUDE OIL PRICE CHANGES

Effective August 29, 1931, Joseph Seep Purchasing of the South Penn Oil Company posted an increase of five cents a barrel on all grades of Pennsylvania crude oil. This makes the fourth advance in price since July 29, 1931.

Crude Oil Price Quotations

(Figures Represent Basic or Flat Prices)



MAJOR PRICE CHANGES

	PENNA. (Nat. Tr.)	MID-CONT. (36 Gr.)	CALIF. (26 Gr.)
June 1, 1931	.....	cut 30 cents	.....
June 3, 1931	cut 25 cents	.....	.....
June 20, 1931	.....	.....	Up 20 cents
July 8, 1931	.....	cut 15 cents	.....
July 11, 1931	cut 15 cents	.....	.....
July 24, 1931	.....	Up 22 cents	.....
July 29, 1931	Up 20 cents	.....	.....
Aug. 3, 1931	Up 15 cents	.....	.....
Aug. 17, 1931	Up 5 cents	.....	.....
Aug. 22, 1931	.....	.....	.....
Aug. 29, 1931	Up 5 cents	Up 24 cents	.....

Official Postings and Differentials

(Revised to September 1, 1931)

California: (Effective June 19, 1931.

Signal Hill, Seal Beach and Alamitos Heights: 14 to 22.9 gravity 65 cents; 23 gravity, 67 cents with differential of two cents for each degree upward. Top price for Signal Hill, 30 gravity, 81 cents; top price Seal Beach and Alamitos Heights, 27 gravity, 75 cents.

Huntington Beach: 14 to 21 gravity, 65 cents; 22 gravity, 66 cents with differential of two cents for each degree upward. Top price, 27 gravity, 76 cents.

Inglewood: 14 to 19.9 gravity 65 cents; 20 gravity 66 cents with differential of two cents for each degree upward. Top price, 25 gravity 76 cents.

Playa Del Rey: 19 to 20.9 gravity 65 cents with differential of one cent for each degree upward. Top price, 25 gravity, 70 cents.

Olinda and Brea Canyon: 14 to 19.9 gravity 65 cents; 20 gravity 66 cents; 21 gravity 67 cents; 22 gravity 68 cents with differential of two cents for each degree upward. Top price, 28 gravity, 80 cents.

Coyote Hills: 14 to 22.9 gravity 65 cents; 20 gravity 66 cents; 21 gravity 67 cents with differential of two cents for each degree upward. Top price, 28 gravity, 79 cents.

Santa Fe Springs: 24 to 26.9 gravity 65 cents; 27 gravity 68 cents; 28 gravity 71 cents; 29 gravity 73 cents; 30 gravity 75 cents; 31 gravity 78 cents; 32 gravity 80 cents; 33 gravity 83 cents; 34 gravity 85 cents; 35 gravity and above 87 cents.

Whittier, La Habra and Montebello: 65 cents a barrel.

Torrance: 14 to 21.9 gravity 65 cents with differential of one cent for each degree to 25 gravity and two-cent differential for 25 gravity. Top price, 25 gravity, 70 cents.

Richfield: 14 to 20.9 gravity 65 cents; 21 gravity 66 cents with differential of two cents for each degree upward. Top price, 25 gravity, 74 cents.

Elwood: 33 gravity 79 cents; 34 gravity 81 cents with differential of three cents for each degree upward. Top price, 36 gravity, 87 cents.

Newhall, McKittrick and Kern River: 55 cents a barrel.

Midway-Sunset, Elk Hills and Buena Vista Hills: 14 to 21.9 gravity 55 cents; 22 gravity 56 cents; 23 gravity 58 cents; 24 gravity 61 cents; 25 gravity 64 cents; 26 gravity 66 cents; 27 gravity 68 cents; 28 gravity 71 cents; 29 gravity 74 cents; 30 gravity 76 cents.

Los Hills: 14 to 20.9 gravity 55 cents; 21 gravity 57 cents; 22 gravity 59 cents; 23 gravity 60 cents; 24 gravity 62 cents; 25 gravity 64 cents; 26 gravity 66 cents; 27 gravity 67 cents; 28 gravity 69 cents; 29 gravity 71 cents; 30 gravity 72 cents.

Coalinga: 14 to 24.9 gravity 55 cents; 25 gravity 57 cents.

Wheeler Ridge: 55 cents a barrel.

Athens, Dominguez and Rosecrans: 24 to 24.9 gravity 69 cents with differential of two cents for each degree upward. Top price, 34 gravity, 89 cents a barrel.

Oklahoma-Kansas-North Texas: (Effective August 22, 1931) Flat Prices: (Magnolia Petroleum Company).

Central Texas: Mexia, Wortham, Corsicana Light, Panola County and Lytton Springs, 64 cents a barrel.

Panhandle Texas, Gray County: 58 cents; **Carson and Hutchinson Counties:** 51 cents; **West Texas: Crane-Upton; Howard-Glasscock and Mitchell Counties:** 35 cents; **Mirando:** 60 cents; **Darst Creek:** 52 cents; **Luling:** 34 cents; **Corsicana Heavy:** 34 cents.

Oklahoma, Kansas, North Texas (Effective Aug. 22, 1931).

Flat Prices.

Oklahoma: Cushing, Yale, Oklahoma City, Morrison, Wewoka and Seminole: 68 cents. **Cement, Duncan, Walters:** 60 cents; **Healdton:** 37 cents; **Hewitt and Graham:** 52 cents.

North and Central Texas: Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden: 68 cents; **East Texas:** 68 cents.

Gravity Scale Prices: Below 28 gravity 44 cents a barrel with differential of 2 cents for each degree beginning with 28 and ending with 40 gravity and above. Top price 70 cents a barrel.

Texas Panhandle: (Effective Aug. 22, 1931).

Gray County: Below 35 gravity, 46 cents with differential of 2 cents for each degree beginning with 35 and ending with 40 gravity and above. Top price 58 cents a barrel.

Carson and Hutchinson Counties: Below 35 gravity, 41 cents with differential of 2 cents for each degree beginning with 35 and ending with 40 and above. Top price 53 cents a barrel.

West Texas: (Effective Aug. 22, 1931.)

Crane, Upton, Crockett, Ector, Howard, Glasscock, Pecos and Winkler Counties, Texas, and Lea County, New Mexico, 35 cents flat.

Southwest Texas: (Effective Aug. 22, 1931.)

Refugio heavy oil 60 cents a barrel.

Refugio light oil—same as Gulf Coast (see below).

Gulf Coast: (Effective Aug. 22, 1931.)

Goose Creek, Hull, Liberty, Orange, Pierce Junction, Mykawa, Moss Bluff, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugarland, West Columbia, Humble and Refugio Light: Below 25 gravity 55 cents, with differential of 1 cent for each degree beginning with 25 gravity and ending with 35 and above. Top price, 66 cents a barrel.

Mirando: 60 cents; **Salt Flat,** 52 cents; **Darst Creek,** 52 cents; **Pettus:** 70 cents; **Markham:** 52 cents.

North Louisiana and Arkansas: (Effective Aug. 22, 1931.)

Caddo, Homer, Haynesville, Bull Bayou, Sabine, Cricton, DeSoto, El Dorado, Cotton Valley, Sarepta, Cartersville: Below 29 gravity 44 cents with differential of 1 cent for each degree beginning with 29 gravity and ending with 40 and above. Top price 70 cents a barrel.

Smackover: 52 cents.

Rocky Mountain States: (Effective Aug. 22, 1931).

Salt Creek: Below 29 gravity 46 cents; 38 gravity and above 66 cents.

Elk Basin and Grass Creek: 90 cents; **Big Muddy:** 68 cents; **Lance Creek:** 105 cents; **Rock Creek:** 70 cents; **Sunburst:** 90 cents; **Osage:** 98 cents; **Cat Creek:** 65 cents; **Pondera:** 70 cents; **Hogback, New Mexico:** 72 cents.

Eastern States: (Effective Aug. 24, 1931).

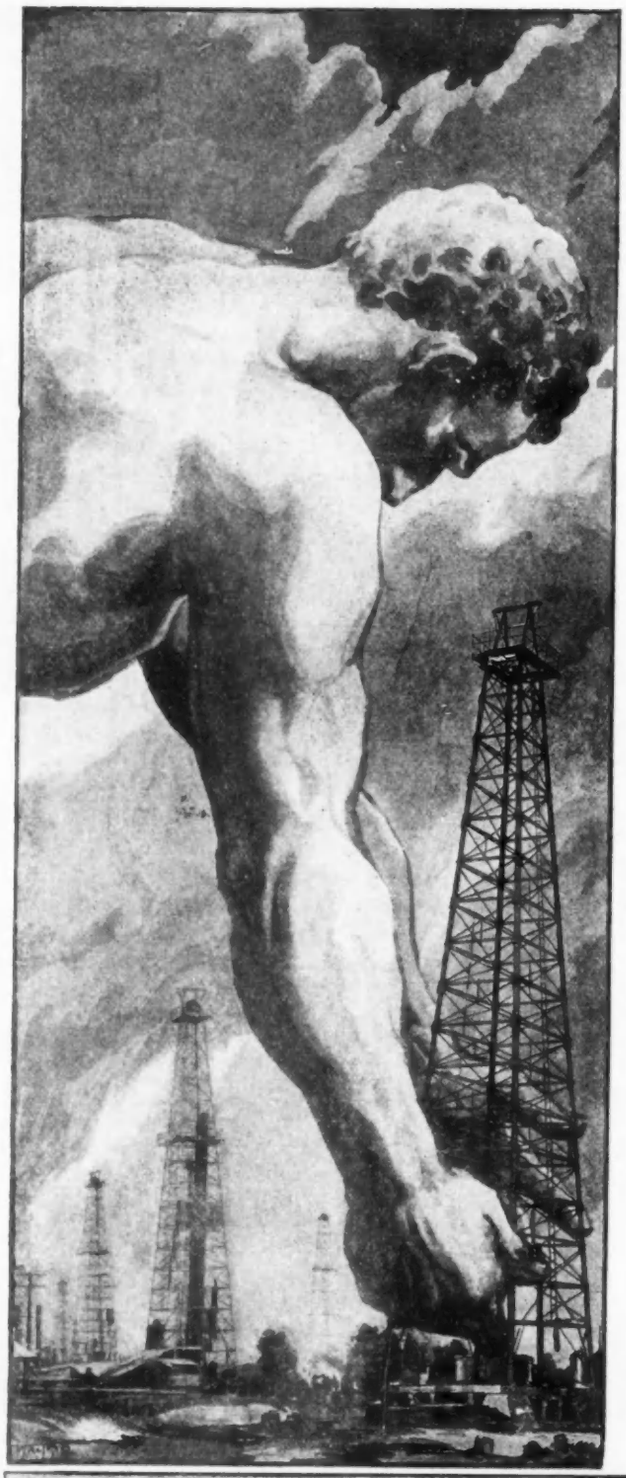
Lima: 90 cents; **Indiana:** 60 cents; **Illinois:** 80 cents; **Princeton:** 80 cents; **Wooster:** $1.00; **Western Kentucky:** 75 cents.

Pennsylvania: (Effective Aug. 29, 1931). **Bradford District: $2.05; National Transit oil: $1.80; Southwest Pennsylvania Pipe Line oil: $1.65; Eureka Pipe Line oil: $1.55; Buckeye Pipe Line oil: $1.40; Corning crude:** 70 cents.

Michigan: (Effective Aug. 22, 1931). **Midland:** 73 cents a barrel. **Muskegon:** Same posting as Mid-Continent; 44 cents to 70 cents a barrel.

Canada: (Effective Aug. 24, 1931).

Petrolia: $1.80; Oil Springs: $1.87.



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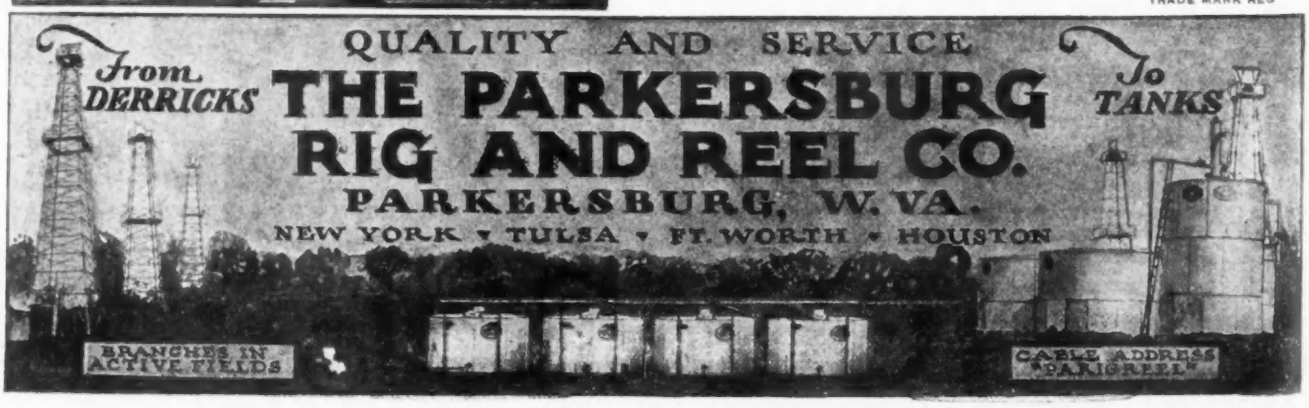
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(*Continued from page* 15)

"Therefore, the operations of the two companies are in effect complementary and the merger would make possible a most economic use of their reserves and facilities.

"Each of the two companies is today handicapped by being able to meet only locally the competition of other large oil corporations having nationwide systems of distribution. To meet the competition of such corporation each of the two companies feels the necessity for enlarging the territory in which it distributes. This can be accomplished by expanding separately, or by merger. Expansion separately would involve costly duplication of existing facilities which are already more than adequate with consequent economic waste and no compensating benefits; while a merger would accomplish the same results without such duplication, and would utilize the complementary facilities of the two companies. In addition, the merger would result in many important economies such as the use of more accessible points of supply and elimination of cross-hauls.

"With respect to the two principal items of oil company operation, namely, crude oil production and gasoline sales a proposed merger—on the basis of 1930 figures—would have approximately 10 per cent of the total crude oil production and approximately 18 per cent of the total gasoline business, domestic and export of the United States."

Construction Progressing On Texas-Empire Pipe Line

Houston.—Construction work on The Texas-Empire Pipe Line Company's 208-mile 12-inch trunk line from East Texas to the Gulf Coast was nearly one-half finished on September 1, only 14 days after arrival of first pipe; and although the system will not likely be completed before October 1, a long section of it, from the flush East Texas producing area to Sour Lake, is expected to be placed in operation around September 15 if the eight construction crews at work on the line are favored with a continuation of the good weather which prevailed during August.

The 35-mile section from Sour Lake to Port Arthur, tidewater terminus of the system, will extend through irrigated rice farms, and the wet land will slow down construction work in that region. But pending completion of that part of the line it will be possible to run East Texas crude through the completed section from Gregg County to Sour Lake station and to divert the stream at that point into the existing multiple-line system of The Texas Pipe Line Company.

All pipe which will be used in the 208-mile line has been shipped from the factories and most of it has been delivered. Clearing of the right-of-way had been completed on September 1, about 70 per cent of the pipe had been strung, 40 per cent of the welding was finished, and the eight construction crews combined were carrying their work forward at the rate of 10 to 12 miles daily.

Contracts for building of this important East Texas outlet were awarded to three companies, and work has been progressing along the entire route. N. A. Saigh Company of San Antonio has two complete crews at work on the project; Apex Construction Company of Lufkin, Texas, is working four complete crews; and Gregg Construction Company of Longview, Texas, has two full crews on the job. The latter concern is welding the pipe by means of acetylene, but the other two construction companies are using the electric method of welding.

Since the speed with which this pipe line is being laid makes its construction of considerable interest, a few significant dates are of importance. Cleaning of right-of-way was started August 8, 1931, by the first crew which went into action, and other crews went to work between that date and August 18. As stated previously, the first pipe arrived on the scene August 18, and on that same day stringing of the first pipe was started, although it was several days later before all the pipe stringing crews were at work. The first welding was done on August 21, on which date three of the total of five welding crews commenced working.

While the construction work on the pipe line is being rushed through, machinery is arriving also for erection of the six pump stations along the main line. These stations will be equipped with centrifugal pumps driven through speed-increasing herringbone gears by Diesel oil engines. Named in order of their locations from north to south, the pump stations include Nettleton station, Gregg County; Reiber, Rusk County; Douglass, Nacogdoches County; Diboll, Angelina County; Warren, Tyler County; and Sour Lake, Hardin County.

Nettleton station at the north end of the system will be adjacent to tank farms of the Henry L. Doherty interests, part owners of the pipe line, and of Tidal Oil Company, the owners of which are contemplating acquisition of an interest in the project. Tidal Oil Company's tank farm comprises ten 55,000-barrel steel tanks, and the Doherty interests have three 80,000-barrel tanks on their site. Six miles south of Nettleton The Texas Company has four 80,000-barrel tanks adjacent to Munro station on The Texas Pipe Line Company's system.

On September 1 officials of Tidal Refining Company were negotiating in New York with the Henry L. Doherty interests and The Texas Corporation for an interest in the 12-inch line out of East Texas, and on or shortly after that date information was expected to be available as to whether or not the Tidal interests would participate in the ownership. All of the three groups mentioned, the Doherty interests, The Texas Corporation, and Tidal Refining Company, are represented in the large East Texas field by producing subsidiaries with extensive proven acreage.

Large Gas Well Completed in Oklahoma Panhandle Area

Tulsa.—Cimarron Utilities Company's Safranke 1, CSE Section 1-3n-14ecm, Texas County, was completed for 22,200,000 cubic feet of gas at 428 pounds rock pressure. First gas, estimated at 2,000,000 cubic feet, was encountered at 2610 to 2640 feet and the big pay at 2685 to 2715 feet; total depth is 2725 feet. This is the largest well yet completed in the Oklahoma Panhandle and is several thousand feet larger than the average well in the Hugoton gas field which lies immediately to the north.

Gas was discovered in the county on November 15, 1922, when Home Development Company completed its well in the NW SW Section 4-1n-11ecm, about seven miles northwest of the town of Texhoma.

Line From Santa Barbara Field to Goleta Planned

Santa Barbara, Calif.—The Irvine Company has been granted permission by the State Railroad Commission to build a short pipe line from the Santa Barbara Mesa field to a loading point off Goleta, a distance of about seven miles. The company has contracted to deliver a large quantity of fuel oil to stations along the coast of Mexico, through intermediate purchasing and distributing companies.

World Depth Record Set When Mexican Test Passes Two Miles

TAMPICO, Tamaulipas, Mexico.—Penn Mex Fuel Company has established a new world's record in deep drilling, having reached the depth of 10,585 feet in its test, Jardin 35, near Tuxpan on what is known as the southern extension of the "Golden Lane." This was the first test ever drilled two miles, and although the present depth is 25 feet in excess of two miles, the ultimate depth is expected to be even greater, drilling having been suspended only temporarily. An 8 9/16-inch hole was being drilled when operations were halted. The well is being drilled with a rotary rig.

In attaining the distinction of being the deepest test ever drilled Penn Mex Fuel Company well has exceeded the record of 10,030 feet set by Chanslor-Canfield Midway Oil Company's Hobson A-2 at Rincon, California, the first well ever to reach 10,000 feet. That California well had a diameter of 4¾ inches at the bottom.

The record test in Mexico encountered limestone at 2267 feet, and the drilling then continued in solid, unbroken limestone at least to 8000 feet, below which depth no official information is available as to formations encountered.

Northern Mexico Wildcats Report Drilling Progress

Monterrey, Nuevo Leon, Mexico.—Although there has been a slowing down of drilling activity in Northern Mexico along with the general slump throughout the world, various operations are in progress in the states of Nuevo Leon and Tamaulipas.

Compania de Petroleo Mercedes, subsidiary of Standard Oil Company of New Jersey, is reported to have plugged and abandoned Rio Bravo 1, Northern Tamaulipas wildcat, which has proved of considerable interest, the final depth being 5006 feet. Location of the test is 17 miles due south of Sam Fordyce Texas, and 18 miles southwest of Reynosa, Tamaulipas, Mexican border town. The drilling site was selected following favorable indications of a structure obtained through geophysical work.

At 2068-2071 feet considerable gas was encountered, but a drill stem test proved unsuccessful when the tester seat broke. At about 3600 feet another showing of gas was reported, while an oil sand was encountered at 3721 feet, resulting in a flow of salt water when a test was made. An assembly of heavy, modern equipment was used on this wildcat, including a tall steel derrick, heavy rotary, and two Diesel engines.

On the Ochoa structure of Northern Tamaulipas Compania de Petroleo Mercedes is drilling at 425 feet in Juan 1, and San Juan Drilling Company's San Juan 1, located 300 feet northeast of the Government Control's Nacionales 201, which produced some high gravity oil, although not in commercial quantity, is standing at 4107 feet.

Ohio-Mexico Oil Corporation is drilling at 1760 feet in La Presa 1, which is located on the Mier structure, eight miles south of Roma, Texas. This test drilled into a sand slightly below 1300 feet, which showed considerable gas, and on a drill stem test it showed 600 pounds pressure and open flow capacity was estimated at about 6,500,000 cubic feet of gas. Location of this wildcat is on a concession of Ohio-Mexico Oil Corporation comprising approximately 16,000 acres and extending from a point about three miles south of Mier, Tamaulipas, to a point about eight miles south of that Mexican town.

Ohio-Mexico Oil Corporation is rigging up rotary to proceed with drilling on Hinojosa 1, which is located 12 kilometers southeast of the village of General Trevino, on the North Aldamas anticline, State of Nuevo Leon. The well is being drilled on acreage controlled by Shell interests. Depth of the hole has remained 3425 feet for some time due to casing having collapsed.

Latest report from Duncan B. McMillan et al's Santa Monica 5, on the South Aldamas anticline, State of Nuevo Leon, credited it with a depth of 1280 feet. The same interests drilled a previous test, Santa Monica 1, on this structure, and encouraging results were reported in it. A gas sand estimated capable of yielding a 10,000,000 cubic foot producer, was found at 1200 feet; and between 1700 and 2000 feet were found strata which yielded non-commercial quantities of 49 gravity crude of paraffine base and containing 70 per cent kerosene. Santa Monica 1 is standing at 3640 feet.

Substantial derrick foundation on Penn Mex Fuel Company's record deep well in Mexico

Personal Mention—Men You Know

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MARTIN J. GROGAN, former president of Louisiana Oil Refining Corporation, who recently resigned from that position, has organized and is president of Grogan Oil Company with headquarters in Shreveport. Grogan Oil Company will do a general marketing and brokerage business in refined petroleum products.

A. S. McINTYRE, vice president and general manager of the Calmec Manufacturing Company, Limited, Los Angeles, is on an extended trip through the Mid-Continent, Gulf Coast and Rocky Mountain States and up into Canada. Mr. McIntyre's itinerary includes various points in Arizona, Denver, Houston and Dallas; Oklahoma City and Tulsa; Kansas City, and Casper; from which point he will go direct to Canada and return via Denver.

F. S. FRANKLIN, JR., has been elected vice president of the Paxall Company, Incorporated, succeeding his father, who died in August. E. P. Watrous, formerly sales manager of the company, has been elected secretary, succeeding Mr. Franklin, Jr.

PAUL J. GETTY, president of George F. Getty, Inc., has reached New York from Germany, en route to Los Angeles, and will return to the home office within a week. He was called home, following resignation of Rush N. Blodget, vice president and counsel.

E. F. BERGDAHL, president of Bergdahl Oil Company, Boise, Idaho, is spending some time in Los Angeles, while purchasing equipment to drill a block of acreage in Idaho. Cable tools will be used for the test.

RALPH REID, formerly chief engineer for Union Oil Company of California, and now a consulting engineer, has been appointed as the third member of the state Board of Registration of Civil Engineers.

THOMAS SHERMAN, formerly petroleum engineer for George F. Getty, Inc., has been appointed assistant manager of the Oil Producers' Sales Agency of Los Angeles.

R. L. HALL, formerly export manager for Richfield Oil Company of California, has resigned, but has not announced his future plans. His resignation was for personal reasons and he has asked that the receiver be given full cooperation from the public.

J. H. PRESSLEY, manager land and geological department for Sun Oil Company, Dallas, is spending a vacation in the Ozark Mountains of Arkansas.

LEON J. PEPPERBERG, petroleum geologist and engineer, is one of the professional men of the oil industry whose wide range of experience in handling matters of exploitation and exploration has fitted him for the chair he now occupies, that of chief of the geological department of the Columbia system, covering the properties of Columbia Gas and Electric Corporation.

LEON J. PEPPERBERG

Mr. Pepperberg, a resident of Columbus, Ohio, where he is affiliated with Columbia Engineering and Management Corporation, won his A. B. and M. A. degrees in 1905 and 1908, respectively, at the University of Nebraska. As a result of his personality and accomplishments as a student, he was initiated by the Sigma Xi, Sigma Gamma Epsilon, Kappa Sigma and Acacia fraternities.

From 1904 to 1906 he spent in service of the Nebraska Geological Survey; from 1906 to 1910 with the fuel division of the United States Geological Survey; from 1910 to 1912 Mr. Pepperberg was geologist for Southern Pacific Company. In 1913 he entered the consulting business in San Francisco, acting from then till 1917 as geologist for Chartered Company of Lower California, Canadian Pacific Railway, Calgary and Edmonton Railway, Hudson Bay Company, Texas Pacific Land & Trust Company.

From 1917 to 1919 he was geologist and manager for C. J. Wrightsman of Tulsa and New York, superintending oil operations and development in Kansas, Oklahoma and Texas. After leaving the Wrightsman organization, he engaged in consulting work in Dallas until 1928, specializing in valuations, development, and oil land litigation. During the interval he was credited with discovery of Ivan pool in Stevens County and Nigger Creek oil field in Limestone County, Texas.

A believer in the helpfulness of dissemination of knowledge, Mr. Pepperberg has made many contributions to technical lore of oil and gas production, notably U. S. G. S. bulletins Number 280j, 381a, 430c, 471e,—and several short papers in Mining and Scientific Press, Western Engineering, The Oil Weekly, and the bulletin of the American Association of Petroleum Geologists.

Mr. Pepperberg is a past regional director of the American Association of Petroleum Geologists; a member of the American Institute of Mining and Metallurgical Engineers, Society of Economic Geologists, Geological Society of Washington, D. C.; is a past president of the Southwestern Geological Society; is a past treasurer of the Dallas Petroleum Geologists, and is a member of the American Petroleum Institute.

R. G. BECHTEL, who was recently appointed production superintendent for Stanolind Oil & Gas Company in West Texas, has established headquarters at San Angelo.

Pipe Lines to Pass Under Ship Channel in Tunnel

(*Continued from page 23*)

digging sufficient air pressure could immediately be built up in the tunnel beyond the inner of the two air locks to equalize the pressure of water and thus to prevent an inundation.

The function of the outer air lock or door would be to enable workers to enter and remain safely within the tunnel during maintenance of the air pressure, a chamber between the outer and inner air locks serving as a compartment in which the worker could gradually become subjected to the change of pressure in entering or emerging from the tunnel.

Outer Lock Opened

Thus in entering the tunnel the outer lock would be opened and the worker would pass from the vertical shaft into the intermediate chamber located between the two air locks. The outer door would be closed behind him. Then air pressure would be gradually increased within the intermediate chamber until it finally became as great as the pressure within the tunnel proper, after which the inner door would be opened and the worker would pass into the inner portion of the tunnel and proceed with the excavating work. Going back out of the tunnel the procedure would be reversed, the pressure being gradually reduced around the worker to atmospheric pressure.

Although the use of the air locks would be safe for the workers, those who would be subjected to the higher pressure would be selected with respect to physical fitness.

Since the tunnel is around 70 feet below the surface of the water in the ship channel, the breaking in of water from the channel into the tunnel would cause it to rush into the tunnel with the pressure of a 70-foot column of water. A column of water one square inch in area weighs roughly one pound to each two feet of height, and consequently the pressure of the water likely to break into the tunnel would be around 35 pounds per square inch. To equalize that pressure and to keep the water out of the tunnel, therefore, the use of the air locks would necessitate building up 35 pounds of air pressure within the tunnel.

While it is practical for physically fit men to work without injurious effect under such pressure, it is necessary that they be subjected to it only gradually; and if the pressure were released suddenly instead of slowly as is possible with use of the air locks, a man might possibly explode.

As previously stated, it is hoped that the use of the air locks will not be necessary, but they have been installed for use in event they are needed.

The total cost of this tunnel project under the ship channel will not be known definitely until it is completed, for a single piece of hard luck, such as a serious cave-in during the tunneling under the channel, might add as much as $10,000 of expense. No official estimates have been given out as to the cost, but it is likely that the project will involve total expenditure of from $75,000 to $125,000.

Advantages of Tunnel

Use of the tunnel for the pipe line crossings will afford several important advantages. The construction of a line through the tunnel will not be as difficult as the customary laying of a crossing over the shipchannel, the latter method calling for dredging of a trench at the bottom of the channel, and laying of the line within that trench. In making such a crossing the pipe line company applies to the port commission for permission, and is then allotted a limited time for the work, during which passing of ships is not allowed. In the tunnel it will be possible to lay pipe in the customary construction manner, the welders putting the joints together as they are moved into the tunnel. As stated previously, the lines will be placed side by side on the floor of the tunnel.

A second advantage offered by the tunnel will be in connection with repair work necessitated by leaks or breaks in a line. Breaks which might result in the ordinary crossing through dropping or dragging of anchor by a ship cannot occur, of course, in the tunnel; and whereas a leak or replacement of pipe in the old type crossing necessitated taking up of the line for repairs and re-laying it, any repairs or replacements can be made with very slight expense on lines in the tunnel, involving only a descent into the conduit by the workmen. In this connection, the lines in the tunnel will not be subjected to any strain in the laying as the lines are when laid along the ship channel bottom, and within the tunnel corrosion will be practically eliminated. Consequently leaks and replacements will be virtually dispensed with on the lines in the tunnel.

Finally, a third advantage of importance offered by the tunnel is the elimination of possible future necessity for taking up and re-laying of the pipe lines in connection with further deepening of the Houston ship channel which has been contemplated. The tunnel of the Sinclair interests is well below any level to which the channel would ever likely be deepened.

Gas Pipe Line Running East From Wyoming, About Ready

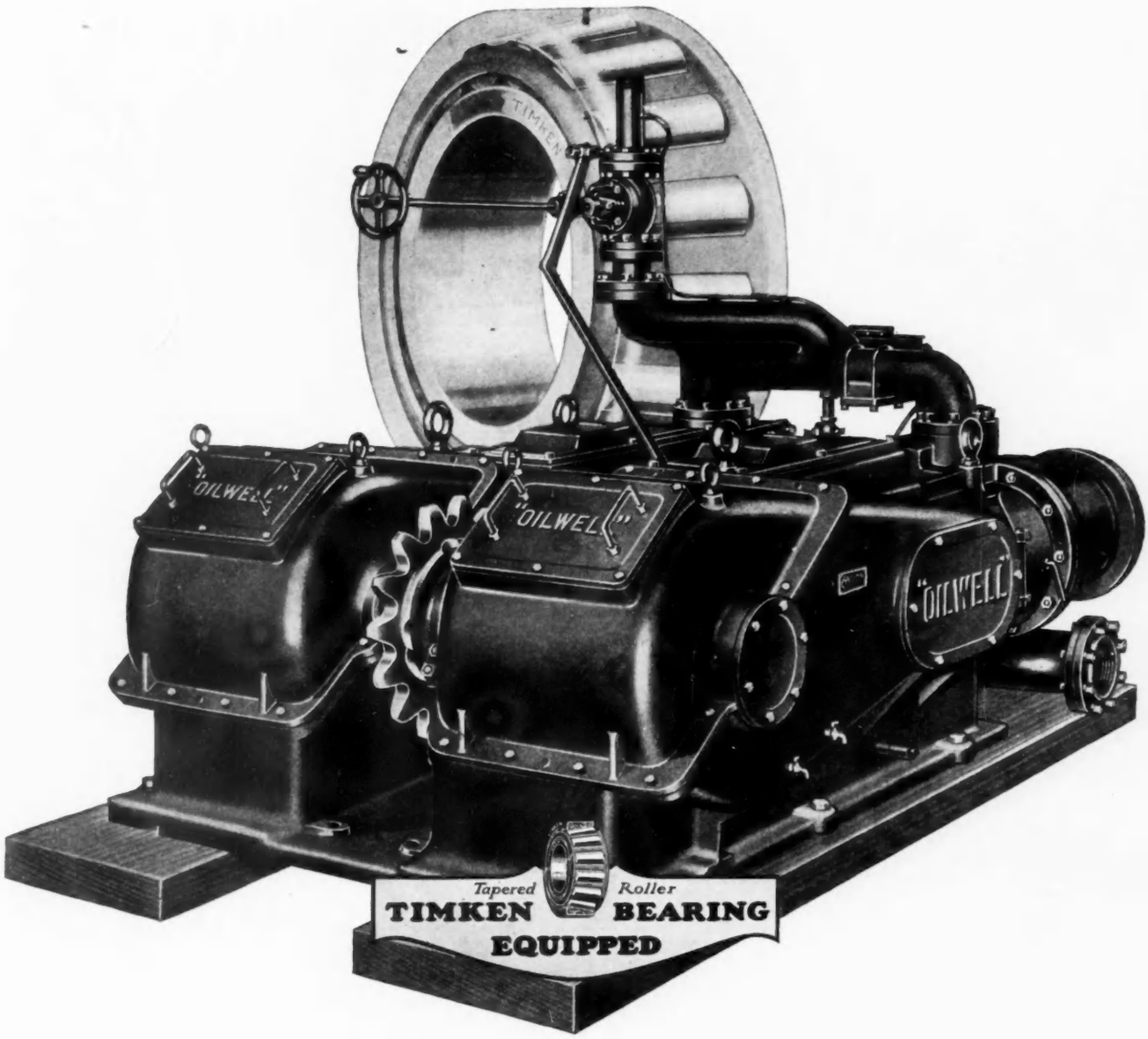
Casper, Wyo.—The long gas pipe line project from central Wyoming to eastern towns and cities in that state as well as to communities in western Nebraska, is very near completion. The original project is already completed, and the 100-mile eastern extension is well under way. Douglas, Wheatland, Guernsey, Ft. Laramie, Lingle, and Torrington, in Wyoming, and Morrill and Mitchell in Nebraska are now using the new fuel, and by September 1, Scottsbluff and Gering, in Nebraska, as well as all of the other towns to be served, will have gas available. The old Sinclair oil pipe line, reaching from Salt Creek field to Freeman, Missouri, has been leased from Stanolind Pipe Line Company, to which it now belongs, and has been cleaned and repaired as a gas trunk line from which laterals are laid to various communities. Compressor station at Casper is completed and in use.

Name Willson Assistant On Association's Staff

Oil City, Pennsylvania.—Rodney J. Alexander, executive secretary, Pennsylvania Grade Crude Oil Association, recently announced the appointment of Harvey Willson as assistant secretary.

Willson came from New York City where he was for nine years assistant general manager of the Rubber Manufacturing Association, which embraces all of the prominent tire manufacturers. Subsequently, he was publisher of a trade journal circulating among tire dealers and service stations. His experience has been along lines closely related to the work of the Pennsylvania Grade Crude Oil Association.

Willson's first experience was gained with the Trunk Line Association, a co-operative organization of the eastern railroads located in New York. He served in the Marine Corps during the World War.



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"Pretty convincing, eh?"

"Perhaps—but I'd rather read about field tests instead of laboratory ones."

"Well then, here's just what you ordered: On a 1,000 mile line of 24-inch pipe, the joints of which were welded by Lincoln's 'Shielded Arc' process using 'Fleetweld' electrodes, the average tensile strength of 715 coupons cut from the welded joints was 73,646 pounds per square inch."

"That's going mighty high."

"Yes, also wide and lively. Wide, since they make broad claims for ductility equivalent to mild rolled steel and resistance to corrosion greater. And lively, since the speed of welding is three to four times greater by this latest development of

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W-186

Oklahoma--Kansas Field Notes

FLOYD SWINDELL, *Staff Representative, Tulsa, Oklahoma*

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Oklahoma City Averages 7510 Barrels Oil Daily

Oklahoma City.—The Oklahoma City pool averaged 7510 barrels daily during the week ending Saturday, August 29, or a total of 52,570 barrels for the week. Of this amount more than 40,000 barrels were from new wells taking their potential gauges, leaving only slightly over 1000 barrels daily production from old wells. Approximately 50 operations were listed on the drilling report but 50 per cent of these are shut down indefinitely leaving only about 25 drilling wells in the pool.

Westgate Oil Company's Carey 3, SW SE NW SE, Section 34-12n-3w, big producer in the northern portion of the pool, continued to hold its reputation as the largest well in that sector when it was further tested during the past week. The first three-hour gauge was 10,255 barrels flowing through a four-inch choke with 500 pounds back pressure. A five-inch choke was installed and the well flowed 12,265 barrels in 3¼ hours under a back pressure of 475 pounds, making a potential of 90,571 barrels on a 24-hour basis.

American Oil Company opened its Washington Park 1, SW NW SW, Section 35-12n-3w, to take the remaining four hours of potential gauge. After flowing 2320 barrels in one hour and six minutes connections were badly cut and the well was shut in for repairs. This completed five hours and six minutes flowing time which gauged 11,320 barrels, rating the well at around 50,000 barrels. It is located in the northern portion of the pool approximately one-half mile east of Westgate's Carey 3.

Slick and Urschel Incorporated's Long 1, SW SW NW SE, Section 15-11n-3w, encountered Wilcox sand from 6430 to 6516 feet and gauged 6639 barrels during the full eight-hour potential gauge. Shortly after it had been cleaned gas gauged 135,000,000 cubic feet. At the end of eight hours this had decreased to 17,000,000 cubic feet but the rate of oil flow was steadily increasing.

Slick Estate's Central 3, NW SE SE SE, Section 3-11n-3w, partially completed during the first week in August when it showed only 11 barrels of oil in three hours and 12,000,000 gas, was drilled deeper recompleted for 436 barrels in eight hours. Wilcox sand was logged from 6248 to 6260 feet and broken sand from 6260 to 6552 feet, which is the total depth. Being near the contact between Wilcox sand and the sands of lower Simpson, a great thickness of the former was not expected. It may be drilled deeper but it is likely that water will be encountered before the Simpson formation has been drilled through.

Wilcox Oil and Gas Company's Martin 1, CS½ SW NW NW, Section 10-11n-3w, reported 1807 barrels of oil the first 5¼ hours from Wilcox sand at 6466 to 6532 feet. It is understood that some confusion has existed concerning the number of hours this well has been allowed to flow and it was reported to have exceeded to eight hours allowed for taking potential gauges. Morgan Petroleum Company completed its Bisbee 1, NW SE NW, Section 3-11n-3w, flowing 740 barrels in 30 minutes with gas estimated at 35,000,000 cubic feet. Production is coming from Wilcox sand at 6330 to 6486 feet. Wilcox Oil and Gas Company will operate the well.

Phillips Petroleum Company's Leverish 1, CN½ S½ SE SW, Section 10-11n-3w, flowed 5166 barrels in 4½ hours from Wilcox sand at 6416 to 6546 feet.

Wildcat Test Is Projected For Northwest Murray County

Tulsa.—Capitol Refining Company and T. E. Revels are moving in material and starting to rig up rotary tools at their Cutchall 1, SE SE NE Section 6-1n-2e, a wildcat operation 3½ miles southeast of here. It is located in northwestern Murray County on the north side of the Arbuckle Uplift. Although geological evidence is scant in the area it is the only part of the county which is favorable for oil production. Several wells have been drilled into the red beds of the Pontotoc series and a few have encountered older beds. Scotts Dome Oil Company's Ellis Price 1, CSW Section 34-1s-2e, had small showings of oil and gas at 800 to 900 feet and 1000 to 1100 feet and was completed at 1269 feet, apparently about 400 feet into the Simpson formation.

Northeast of Marietta

Batson, Starritt and Autry are reaming preparatory to testing a showing of oil logged in sand at 1524 to 1534 feet in their Dr. Autry 2, SW SE NE Section 27-6s-2e, Love County wildcat located about seven miles northeast of Marietta. This showing is at approximately the same depth as that encountered by Schermerhorn-Ardmore Company in its Dillard 1, CSE NE NW NW Section 25-6s-2e, and which was later cleaned out and tested by Batson and Starritt. The original operators drilled it to 4433 feet and abandoned. Subsequent tests of the sand at 1585 to 1596 feet were unfavorable and it was abandoned.

Tatums Pool

Carter Oil Company completed its Franklin 4, NEc Section 24-1s-3w, flowing 2330 barrels the first 24 hours. Production is coming from a sand series logged between 1859 and 2063 feet. It is located in the northeastern portion of the pool and rates among the larger wells in the area. Further drilling to the northeast may result.

Open Bids for Nine Oil and Gas Leases on Indian Lands

Pawnee, Okla.—Bids on nine oil and gas leases on restricted Indian lands will be received at the Pawnee Indian Agency as late as 2 o'clock on the afternoon of September 10, at which time they will be opened by A. R. Snyder, superintendent of the agency.

Tracts on which bids have been asked are as follows: S½ SE SE Section 14-23n-5e, 20 acres; N½ N½ SE and N½ S½ N SE Section 14-23n-5e, 60 acres; S½ S½ N½ SE and N½ SE SE and SW SE Section 14-23n-5e, 80 acres; W½ SE Section 24-23n-5e, 80 acres; lot 4 of Section 24-23n-5e, 34.5 acres; lot 3 and S½ NW Section 24-23n-5e, 121.2 acres; NE Section 26-23n-5e, 142 acres; NW Section 26-23n-5e, 142 acres; and SE SE Section 25-23n-5e, 40 acres, making a total of 719.7 acres to be offered.

New Shut-Down Order Places Seminole at 43,990 Barrels

Seminole, Oklahoma.—New allowable production figures were issued Saturday, August 29, presumably to cover all Seminole district pools as long as the executive shut-down continues. Considerable mystery seems to surround issuance of the new order which reduces output from those pools from about 72,000 barrels daily to 43,990 barrels daily. The order apparently was prepared by Cicero I. Murray, cousin and oil advisor of Governor William H. Murray, and handed to Ray Collins, state umpire from whose office it was mailed. No statement accompanied the list so it is not definitely known when the order was to be effective. At the inception of military control of the district it was understood that all wells that undoubtedly would be injured by being shut-down would be exempted and allowed to produce on some equitable basis. Murray has not made public any statement in explanation of the basis upon which allowable production was determined. Daily allowable by pools and by operating companies is as follows:

	Barrels
Allen (Deep and shallow)	3,395
Wanette	1,500
Bowlegs	4,000
Carr City	100
West Chandler	None
East Earlsboro	1,425
Old Earlsboro	4,735
South Earlsboro	1,030
Earlsboro Townsite	800
Konawa	1,275
Little River	6,210
East Little River	2,625
Maud	530
Mission	1,380
Sasakwa	505
Searight	1,460
Seminole City	3,615
East Seminole	440
West Seminole	None
St. Louis	8,015
Wewoka Townsite	950
Total	43,990

	Barrels
Amerada	1,765
Acme Drg.	15
Atlantic	290
Barnsdall	1,465
Blackwell	345
Burke-Greis	425
Barrett-Brown	50
Bacon Drg.	25
Carter	3,335
Clarke-Cowden	50
Champlin	170
Crossbie	40
Continental	710
Droppleman	150
Darby	400
Deep Rock	915
Empire	675
Gilcrease	45
Gypsy	4,690
J. S. Frank	130
Eason	300
J. A. Hull	50
Houston Oil	75
Home Gas	15
E. L. Harris	155
I. T. I. O.	2,175
Gwin Drg.	25
Keister-Manning	60
Kingwood	100
Laurel O. & G.	45
La. O. & R.	495
Mid-Continent	2,545
Magnolia	2,445
Mid-Kansas	470
Minnehoma	260
Mid-Center Dev.	50
Oklahoma Co.	325
Prairie	5,100
Pure	1,245
Payne Drg.	175
Papoose	15
W. B. Pine	860
Phillips	1,700
Producers & Ref.	110
Panther	15
Ramsey Pet.	240
Slick Estate	150
Signal Oil	45
Snowden-McSweeney	50
Skelly	330
Shell	625
Stanolind	90
Superior	285
C. B. Shaffer	100
Sinclair	3,480
Sunray	695
Texas Co.	1,815
Twin State	380
Turman	135
Tomlinson-Palmer	50
Tidal	415
Westheimer	420
Wilcox O. & G.	215
Total	43,990

No wells were being drilled in the Seminole district during the past week and only 14 operations are now listed as active. Last reports on each were as follows: Grant et al, Townsite 1, CSW, Section 18-6n-4e, rigged up and shut down; A. J. Diffie, Mathis 1, SW SE NW, SE Section 29-6n-6e, total depth, 2545 feet, shut down; Scroggins et al, Collins 1, SE NE, Section 30-6n-6e, location; Barnsdall, S. Factor 1, Section 13-7n-6e, old total depth 3198 feet, top second sand 3255 feet, total depth, 3273 feet, show oil and water and 1,000,000 feet gas, plugged back to 3265 feet, pumping 10 barrels daily; Prairie, B. Smith 7, NE NE SW, Section 5-7n-7e, old depth 3775 feet, sand 3333 feet, total depth 3380, shut down for orders; Jarvis Holm, Fish 1, NW NW NE, Section 30-7n-8e, cellar; Burgher et al, Charley 1, SW NW SE, Section 18-8n-6e, shot 30 quarts hole filled 300 feet with salt water, shut down for orders; Burgher, Dobbs 1, SW SE SE, Section 18-9n-5e, rigged up and shut down; Pierce et al, Holsey 1, NE NE, Section 17-9n-6e, rig and tools; Cromwell, Dunson 1, NW NE, Section 4-9n-8e, cellar; Mid-Continent, Atkins-Lasley 1, NE NW, Section 15-9n-8e, shut down at 3284 feet; Idle Hart, McCoy 1, SE NW, Section 27-9n-10e, shut down at 2000 feet for eight-inch casing; and Lambert-Hart, Haer 1, Section 21-10n-5e, rig.

Ritz-Decker-Garrett Area Is Partially Closed Down

Wichita, Kansas.—Operators in the Ritz-Decker-Garrett area of McPherson County, led a confused existence during the week with shut-down orders coming from the Public Service Commission and recalled almost before they could be put into operation. The area was closed down on Monday, August 24, the order including all wells. Under a further petition by operators the commission decided that a 100 per cent shut-down would be destructive to chat wells which are making water and a supplemental order granted permission to produce 10 per cent of potential for wells producing from that formation.

Potential for the zone is believed to be about 30,000 to 35,000 barrels daily, permitting 3000 to 3500 barrels daily under the 10 per cent allowance. Phillips Petroleum Company announced that effective August 31, it would pay $1.00 per barrel for oil and would take 1000 to 1500 barrels daily from Ritz-Decker-Garrett. The commission decided to allow the company to take this nomination and any other purchasers who will pay the same price will be allowed a portion of the remaining 2000 to 2500 barrels daily.

Three new wells came on production during the week in the three pools that comprise the area. Lassen et al, Unruh 1, CSW SE SE Section 31-19s-1w, pumped 956 barrels in 24 hours from Viola lime at 3414 to 3423 feet. It is an old well taking potential under the last proration order which required all non-flowing Viola lime wells to take potential though not to exceed three-inch tubing and a 54-inch stroke.

Lario Oil & Gas Company and Shell Petroleum Corporation's Essley 1, NE NE SE Section 24-19s-2w, on the edge of the Garrett pool, pumped 1315 barrels in 24 hours from Viola lime at 3394 to 3405 feet. Shawver et al's L. C. Decker 1, NE NE NE Section 2-20s-2w, topped the chat at 2925 feet and was being estimated good for 4000 barrels from depth of 2954 feet. An unusual feature of this well was an increase in gas in the last foot of hole. It is a south offset of Dickey Oil Company's Eva Decker 1, which is the largest well in the field with a potential of more than 6000 barrels. The E. L. C. Decker 1 probably will be deepened a few more feet since it lacked several feet being structurally as low as the Eva Decker 1.

No operations of interest were reported from other Kansas areas during the week.

News From California Fields

BRAD MILLS, ***Staff Representative, Los Angeles, California***

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Resume Operations on Elwood Field Deep Test

Santa Barbara, Calif.—Barnsdall Oil Company and Rio Grande Oil Company have resumed operations in Bell 14, a deep test in the Elwood field, following a shut-down of several months. This well was drilled in the Sespe to 4392 feet and shut down after a difficult fishing job. The hole was cleaned out to 3800 feet, but the bottom drill pipe was not recovered. The Elwood field is producing from the Vaqueros sand, but production in the Sespe was regarded as a strong possibility. Bell 14 is located near the center of the field and should be a representative test of the deeper zone. The Sespe formation is not necssarily a prolific producer, but since it is so shallow, there was a natural desire to test it. Some gas was found, but the showing of oil was not convincing.

Barnsdall Oil Company and Rio Grande Oil Company, joint operators in the field, are coring in hard sand and shale at 6825 feet in Bishop-Evans 1, an outpost test near the field. This well has shown little promise.

Testing Deeper Zones In Ventura Avenue Area

Ventura, Calif.—Pacific Western Oil Company and Bolsa Chica Oil Corporation, both of which have been inactive in the Ventura field for some time, are doing a limited amount of field work as the result of a desire either to test the deeper zones or to recondition old wells.

General Petroleum Corporation is also anxious to improve the gas-oil ratio in several troublesome producers and intends to work over some of these wells.

Superior Oil Company recently entered into an agreement with Bolsa Chica Oil Corporation, whereby a more conclusive test will be made of the deep zone.

Shell Oil Company has virtually withdrawn from field work, having only one active test under way. Associated Oil Company is drilling six wells and is easily the most active operator. The new deep zone will be a large producer, but extensive deepening operations are not expected this year.

Status of Huntington Beach Deep Test Remains Unchanged

Huntington Beach, Calif.—W. E. McCaslin has not abandoned hope of production in Transport 1, deepest test in the Huntington Beach field, but swabbing and shooting have not materially improved the status of the well. This test was originally drilled to 8365 feet but failed to flow after swabbing. Four shots were placed at intervals of 75 feet between 7950 feet and bottom, but the well bridged and has shown only faint signs of production. The hole was cleaned out to a point below 8000 feet. The heat near the bottom of the hole was so intense that the nitro-glycerine was set off naturally after it had been in the hole only a short time. Four shots were set off without fuses of any kind.

Superior Oil Company is coring ahead below 8100 feet in Gillette 7-2, following the cutting of a very hard sand. This well was cleaned out to bottom at 8070 feet and swabbed below 4000 feet, but showed no oil on the production test.

Possibility of a deep drilling campaign is somewhat remoter than was the case a few months ago. All of the deep tests are doubtful, and it is possible that the deep zones at Huntington Beach may prove dry.

Kettleman Hills Activities Continue on Downward Plane

Coalinga, Calif.—Edge tests on the North Dome and the impending production test of the deepest Middle Dome at Kettleman Hills held the bulk of interest during the week, but the net change in the status of field operations was perhaps downward. An analysis of North Dome developments points to a more satisfactory producing situation along the northern and northeastern fringe than on the southern flank, but it is too early to condemn edge tracts which have not met expectations. The northwestern tip of the field has proved remarkably productive, even yielding large wells outside the line which was originally drawn to mark the maximum producing area.

Petroleum Securities Company's Burbank 1, a Middle Dome test, remains the most interesting drilling well in the field. The Temblor formation probably was picked up at 7563 feet and the well is now coring ahead in hard gray sand at 7650 feet. Faint cuts have been shown by all cores taken below the Temblor point of contact. A string of 8⅝-inch casing was cemented at 7326 feet, but the formation immediately below the shutoff was disappointed. On the outcome of Burbank 1 largely depends the amount of drilling to be done this year and part of next. Standard Oil Company's No. 6-29V remains idle at 5460 feet, pending the production test in Burbank 1. Several tentative locations have been made on the Middle Dome, but actual work will not be started until the Temblor formation shows more definite signs of production. This part of the field embraces about 3000 acres and is still a distinct puzzle in the deep zone. Some shallow oil was developed several years ago by Bolsa Chica Oil Corporation, and some have credited this company with the discovery on the Middle Dome. The formations which are found on the North Dome should also be present on the Middle Dome, but there is no assurance that they will be as productive as the larger producing section to the northwest.

Bolsa Chica Oil Corporation cleaned out to bottom at 7690 feet in Ferguson 1, which had been idle for more than a year, but the well failed to respond in a very impressive manner and is being deepened. This test is located on the extreme edge of the structure, with the outside producing line, drawn by interests which dominated the Kettleman North Dome Association, passing near the well. The Temblor formation was reported a short distance below 7000 feet, but it developed that the objective zone had not been

found. The government granted a discovery below 7500 feet, but there was some doubt at the time of the identity of the zone. After cleaning out to bottom, the fluid level rose last week and a decision to deepen was reached. The structure dips sharply at this point.

North American Consolidated Oil Company has succeeded in recovering the drill pipe from Blauvelt 1, an edge test on the North Dome, and is reaming to bottom to run a string of casing to around 8483 feet. If successful, this will be a record string of nine-inch casing.

The new locations made last week by Kettleman North Dome Association were made largely to determine the possibility of edge leases, but they will be important wells and may lead to several offsets. One of the new locations was an offset to Associated Oil Company's Whepley 2, on the north flank of the North Dome. The west and northwest flanks of the structure have proved both interesting and productive and will be important to know the producing limits along this edge. Some of the best completions in the field have been located on the northwest tip of the North Dome.

Kettleman North Dome Association has successfully killed Continental Oil Company's No. 1-2P, once the largest producer in the field, to reduce the gas-oil ratio to a more reasonable, as well as to increase production. This well was completed with an initial production of above 7000 barrels of 61 gravity oil and was producing about 1700 barrels when killed. Gas production was about 175,000,000 cubic feet at the time of completoin and was nearly 80,000,000 cubic feet immediately before the well was killed for deepening. This producer was one of four allowed to flow under terms of the original curtailment agreement. It has wasted an enormous quantity of gas over a long period. Killing of the well was accomplished with little trouble by Doheny Stone Drill Company. These wells were regarded as very dangerous when completed, but the pressures declined considerably during the producing period.

The best producing wells on the North Dome have been beaned back to produce only a fraction of their rated potential and total production is only slightly above the net allowable. Superior Oil Company's Huffman 1, has been reduced to 2800 barrels, while Huffman 2 is flowing only 900 barrels. These two wells could produce more than 20,000 barrels, if allowed to flow unrestrained. Other wells have also been beaned back sharply.

North Belridge Producing Limits Are Being Defined

Bakersfield, Calif.—The producing limit of the North Belridge field is gradually being defined, but the extent of the deep zone toward the northwest has not yet been determined.

Belridge Oil Company is reaming to complete No. 48-35 at 5425 feet. The Temblor formation was found at 4980 feet. This well roughly offsets Union Oil Company's Belridge 17. The company's No. 64-27 is coring at 5757 feet in hard shale which does not look as promising as earlier tests.

General Petroleum Corporation is drilling at 6050 feet in Berry 1, a deep test in the South Belridge field. The formation is running to brown shale. This is an important test and will largely determine the extent and value of the Temblor formation several miles from the discovery in the North Belridge field.

The district has become quiet, as compared to the large number of wells under way a year ago.

Wildcatting in Santa Barbara County May Show An Increase

Santa Barbara, Calif.—After a long decline, wildcatting in Santa Barbara County should not reach a lower level than now exists. A favorable discovery in any one of the half dozen tests might lead to three times the activity now in evidence, but no new fields loom on the horizon at this time.

Following the discovery of the Elwood field, wildcatting in Santa Barbara almost doubled overnight. A blowout or two in districts which later proved to be of little value added to the excitement, and Santa Barbara County became the center of state activity. Most of the most promising structures were either proven or eliminated and the general condition of the industry aided the decline in field work. Two or three small fields have been found in the country, but they are of questionable value. Both the major and smaller companies participated in development of a dozen structures.

The Goleta district remains one of the most active in the county, but only gas has been found. General Petroleum Corporation has drilled three wells, two of which have yielded gas in commercial quantities. Although only a stone's throw from Elwood, the More Ranch property has shown little relationship to the best field yet found in Santa Barbara County.

Bolsa Chica Oil Corporation is drilling in red shale at 5365 feet in Augur Permit 191-1, an ocean test off Coal Oil Point which promised to open a new field early this year. Western Gulf Oil Company is drilling at 7150 feet in Bradley 1, a deep test near Santa Maria. Ohio Oil Company is making good time in Aakley 1, a wildcat test near Goleta, but the hole is too shallow to attempt definite correlations. Present depth is 2140 feet.

Test Near Newport Beach Abandoned at 5627 Feet

Los Angeles, Calif.—Standard Oil Company is abandoning Irvine 1, a wildcat test near Newport Beach, at 5627 feet, following a test of showings found below 5000 feet. A string of 8⅝-inch casing was cemented at 4630 feet and a swabbing test made. This casing was presumably run as a precaution, but it developed that a test was intended to determine the feasibility of deeper drilling. The well showed no signs of flowing.

The Newport district has produced shallow oil for a generation, but has not been tested extensively in the deeper zones. Other wells drilling in the district may be affected by the abandonment.

The Newport area is directly in line with such fields as Long Beach and Huntington Beach and is the southeastern terminal of the Newport-Beverly fault.

Coring Sand and Shale in Lost Hills Field Deep Test

Bakersfield, Calif.—Lincoln Drilling Company is coring oil sand and shale at 4820 feet in Theta 1, a deep test in the Lost Hills field. The formation is more promising than any found, but geologists believe that the Temblor zone may not be found short of 6000 feet. This belief is based on examination of cores taken from other wells. The first showings may come from a formation which corresponds to the brown shale at Kettleman Hills. If this proves to be the case, the true Temblor may be productive at various depths between 5500 feet and 6500 feet.

Lost Hills lies farther out in the San Joaquin valley than

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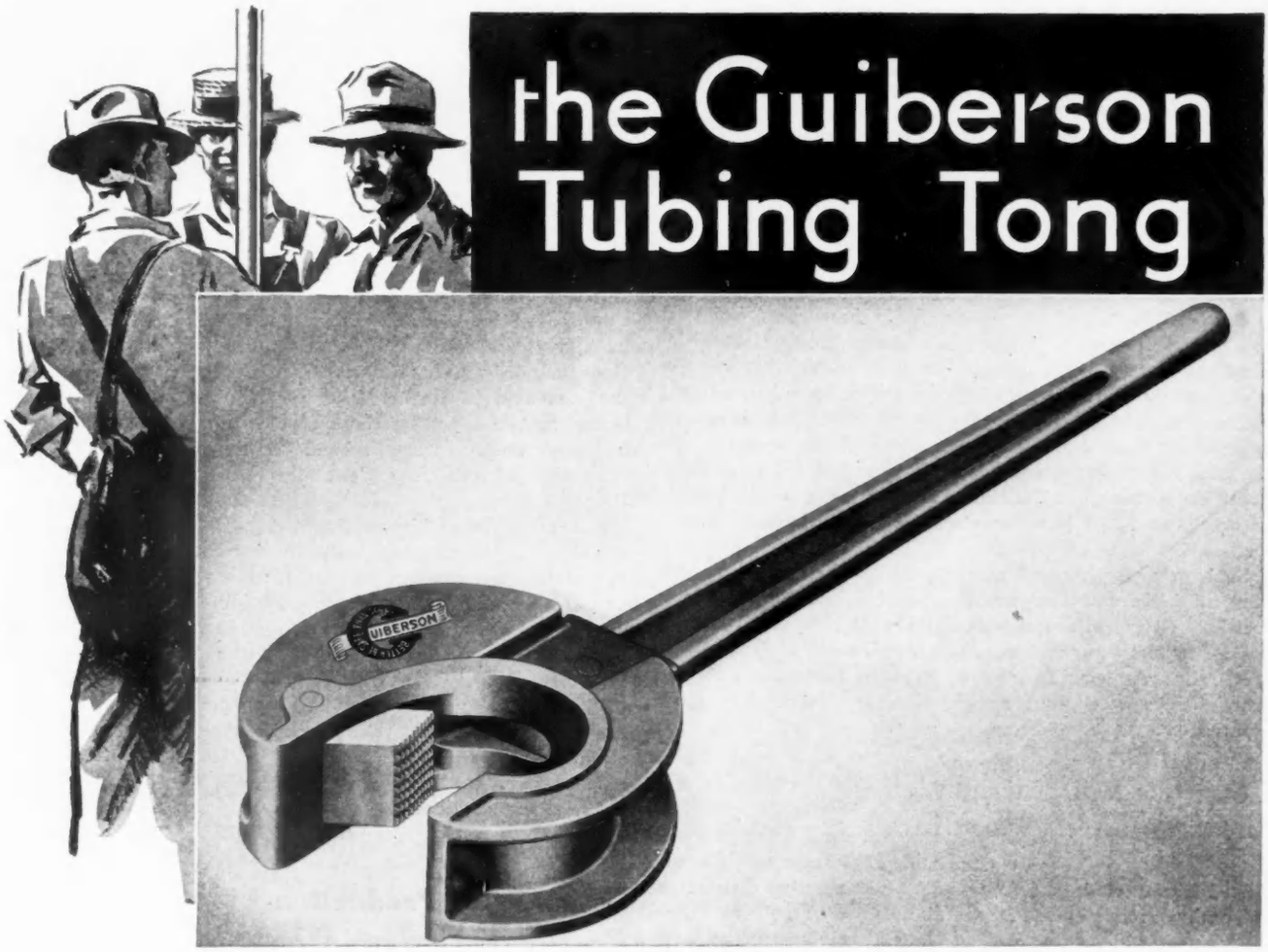

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Kettleman Hills, and it is reasonable to suppose that the Temblor formation may be even deeper than at Kettleman Hills, and certainly deeper than at North Belridge, a short distance to the south.

General Petroleum Corporation is coring at 4250 feet in No. 1301, possibly the best located of the several deep tests yet drilled. The Lost Hills field is well located with reference to the Temblor formation and there is no reason to condemn it in this zone. It lies exactly in line with the South Dome at Kettleman Hills and may have an important connection with this part of the field to the northwest.

California's New Well Total 264 Against 567 During 1930

Los Angeles.—Total new wells started in California since January 1 stands at 264, as compared with 567 at the same date last year. Permits granted for new wells has been running considerably behind the average estimates issued at the beginning of the year.

Both wildcatting and proven fields have been affected sharply by conditions within the industry, and at last overproduction has struck mightly at field work in every district. Previously, dull periods were not followed by radical reductions in drilling, but the adjustment has been so severe that field work has been curtailed to the limit. In the absence of flush fields, permits granted for new wells could do nothing but decline. Even a continuation of wildcatting would not have prevented a sharp decline in new wells.

Such fields as Long Beach, Santa Fe Springs, Playa del Rey and Elwood have made miserable showings in new well activity, while Kettleman Hills and North Belridge have not met expectations. The decline of wildcatting in Kern, Los Angeles and Santa Barbara Counties was not wholly unexpected, but has been more severe than anticipated.

Complete 200-Barrel Well In Osage Field, Wyoming

Osage, Wyo.—There was another 200-barrel well completed last week in the Osage field, most active district in Wyoming at this time. It is Yellowstone Petroleum Company's test which is producing from a sand at 1830-48 feet. Oil is very high gravity and commands a good price. Egaso Operating Company is running oil through its pipe line in the field from Lambie Oil Company's lease in the western part of the field. The oil is stored in a 10,000-barrel tank near the town of Osage and is to be shipped to the refineries of Yale Oil Corporation at Billings and Miles City.

Cheyenne, Wyo.—The Wyoming state treasurer has been notified by the federal government that royalty receipts from mineral leases will be delayed for several weeks, the delay being occasioned by the necessity of receiving final reports from several federal land officers as of the end of the fiscal year, July 1, 1931. Income to the State of Wyoming from federal royalties this year will be considerably less than heretofore because of curtailed oil production and the unusually low prices of crude oil.

Billings, Mont.—Considerable gas is showing in the first Frontier formation at 4575 feet in Carbon Oil & Gas Company's well in Dry Creek field, Carbon, southern Montana. This test is well out on the east side of the Dry Creek structure, and if it proves commercially productive, will extend the area of the field more than one mile in that direction.

▼ NEW MEXICO - ROCKY MOUNTAIN AREA ▼

Discover Another High Gravity Oil Field on Greasewood Dome

Denver, Colo.—Definite proof of another high gravity oil field in the Rocky Mountain states was established last week on the Greasewood dome when Reiter-Foster Corporation's test on the Ida Johnson property started flowing around 1200 barrels per day at 6645 feet, still some distance above the true producing sand. The field was actually discovered when Platte Valley Petroleum Company drilled a well into this stray sand last fall and completed it for about 350 barrels per day which it has maintained steadily ever since.

Most of the major operators in the Rocky Mountain states, including Ohio Oil Company, Midwest Refining Company, Continental Oil Company, Texas Production Company, and others, hold extensive acreage in Weld County, northeastern Colorado, in the general vicinity of the Greasewood flats. Material and equipment are now being rushed into locations and within a month a half dozen or more tests will be under way.

At the present time Continental Oil Company has its Briggs 1 down more than 5400 feet, and should be drilling into production within another week.

The oil is very high gravity and commands a ready market in the Denver territory. Continental Oil Company is particularly anxious for the production for its Denver refinery, and will drill up its holdings immediately, it is believed, to secure the crude. There are 10 locations, in all, in the territory, six of which are active.

Continental Oil Company has been granted certificate to lay a pipe line to its refinery from the field at a cost of about $316,331.61. That company is also buying considerable acreage in the county on "highs" outlines by geophysical exploration.

Oil and Gas Production Proven on Garland Dome

Powell, Wyo.—Proof of large oil as well as gas production on the Garland dome, in northern Wyoming, was definitely established last week when Portland Association, Inc., drilled into about 30,000,000 feet of gas and a very considerable showing of crude at 4304 feet last week. Rock pressure is around 1800 pounds. The well is in the Madison formation, the last 400 feet of which have shown heavy saturation.

This well was largely financed by Billings, Cody, and Portland, Oregon capital. Negotiations for drilling the well were concluded last fall with the late S. C. Ferdig of Cody by a syndicate in Billings. After Ferdig drilled to 900 feet the project was taken over by the Portland association, and a new contract let to Paul Stock of Cody for rotary drilling. Work has been continuous since last spring. The well is on an 80-acre tract adjoining Ohio Oil Company's discovery well.

Casper, Wyo.—There are five of the 11 wells under contract for repairs on Naval Petroleum Reserve No. 3, Teapot Dome, Natrona County, Wyoming, which have been completed, and work on the others is going forward steadily.

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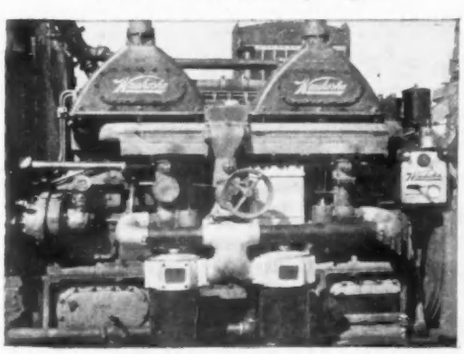

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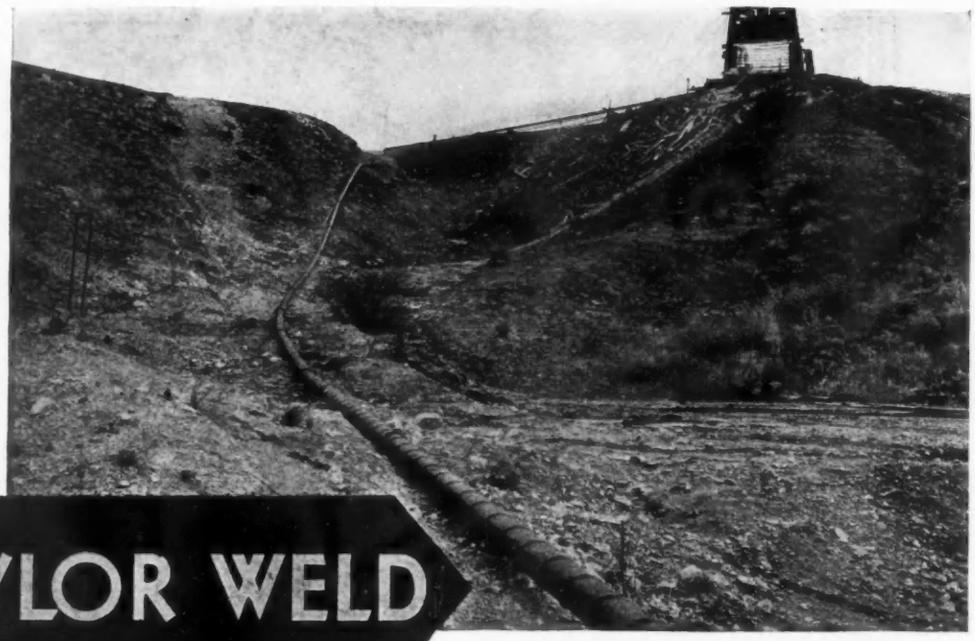

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East Central Texas Field Notes

H. H. KING, ***Staff Representative, Fort Worth, Texas***

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East Texas Active Operations Number 610; Humble Leading

Longview, Texas.—Total field operations in Upshur, Gregg, Rusk and Smith Counties were estimated at 610 at the close of last week, including some tests that had drilled into the sand and shut down without testing. Derricks and rigs accounted for more than 200 of the operations while tests that had gotten beyond the spudding stage numbered about 315. Humble Oil & Refining Company is carrying on about three times as much field work as any other single operator, having added more than a score of new locations during the past week, and carried over 78 listed operations from the previous week.

Included in the total active tests credited to the four counties are 26 wells that have been drilled into the sand and rigged up to complete, but awaiting restoration of field on production before gauging. Most of the operators have elected to complete their wells in the presence of the military guard and close the valve after the well has cleaned itself.

Magnolia Petroleum Company ranks among the leaders on volume of field work, having a total of 30 operations at the close of the week, including 16 active tests; nine derricks and rigs; and five locations. This company has 101 completed oil wells in the field, and has 20 heavy rotary rigs of its own in use, having contracted the work only about a half dozen of its first group of tests. Shell Petroleum Corporation also has 16 active tests, with derricks and rigs in place on seven additional locations. Sun Oil Company has completed 43 producers in the field, and has 11 active tests, including four that were drilled into the sand and shut down to await gauging. Tidal Oil Company has steadily increased its drilling program in trying to keep pace with numerous offsets to its original leases, and those acquired last July for $3,000,000 from Mid-Kansas Oil & Gas Company, having started the present week off with five locations; one derrick; and five drilling tests, making a total of 11.

Resumption of Production in East Texas Awaits Commission

Longview, Texas.—Resumption of production in East Texas was scheduled to get under way promptly after the Texas Railroad Commission released its new proration order. The use of a flat well basis for determining allowables would serve to simplify the enforcement program. Should the commission elect to use the well potential or unit plan of fixing production quotas of leases it will require the balance of the week to work up schedules for the field, and many protests may be registered by operators against such a delay.

A staff of about 25 deputy supervisors, gaugers, engineers, and office help are to be used by the commission in enforcing its new proration order to the letter. This group replaces the proration force heretofore used in the field and paid by monthly cash assessments given operators that would voluntarily contribute to the expense fund.

If the commission selects an allowance of 225 barrels daily per well, regardless of potential oil yield of the producers, or the size of the tract on which it is located, it will be the easiest course to follow in enforcing the new oil and gas conservation law. Duties of the field proration staff will be largely confined to the checking of wells for excess production, and enforcing of the various conservation features incorporated in the new order, while the remaining troops will furnish the police power to support the proration authorities during the period that martial law is applied to the field.

Proration Will Help Those Able To Develop Undrilled Acreage

Longview, Texas.—Any method of proration adopted by the Texas Railroad Commission will be advantageous to operators having available funds and undrilled acreage to use in building up production allowance. The proposed plan of placing the field on a flat daily quota per well was destined to work to the advantage of companies that could afford to drill up properties in short order to earn more production for pipe lines, and would have necessitated a reduction in the well allowance in a few months, else production for the field exceed market demand.

Indications are that a delay of a week or more may result before the field is restored to production, as any proration plan other than a flat well basis will require considerable work in compiling data as to units and potential flow of wells. The flat well basis would have been the simplest plan available to the commission, and the easiest to enforce. In all probabilities there will be approximately 2000 wells in the field when the shut-down order is lifted.

Crude Movement By Rail From East Texas Greatly Reduced

Henderson, Texas.—During the last week of open production preceding the military shut-down of the East Texas field, the railways of that district handled the greatest volume of crude ever moved out by rail from any one area.

The I.-G. N Railroad alone handled 1065 cars of crude and refined oils on its peak day, August 11, that total including some shipments originating on the Texas & Pacific Railroad but routed over the I.-G. N. at Longview. Aside from the volume of oil moved out by the I.-G. N. system considerable quantities were also handled by three other railroads, the Santa Fe, the Cotton Belt and the Texas & Pacific.

Following declaration of martial law and closing in of the field railroad shipments declined rapidly, and on September 1, the I.-G. N., which has been handling a high percentage of the East Texas oils, moved out 30 cars of gasoline and only 24 cars of crude, the crude including 15 cars from Kilgore, three from Longview, four from Henderson, and two from Willow Springs. The gasoline was destined for points in Texas, Kentucky, Georgia, and Iowa.

Large investments were made by the railroads in East Texas for handling oil shipments and general traffic in-

cidental to development of the large field in Rusk, Gregg, Smith and Upshur Counties, the I.-G. N. system alone having spent in excess of $2,000,000. Extensions and additions of sidings and spur tracks along the latter railroad between Arp, Smith County, and Longview, a distance of over 25 miles, have resulted in practically doubling the trackage between those points. The railroads built numerous spurs for handling empty tank cars, sidings for allowing trains to pass each other, and also spent large sums in connection with construction of tank car loading racks, building switches and tracks from the main line to the clearance point, ranging from 150 to 225 feet from the switches.

Protests Against Shut-Down Confined to Local Refiners

Tyler, Texas.—The East Texas field is entering its third week of suspended production by military rule without a new proration order having been issued by the Texas Railroad Commission. During this production inactivity formal protests against the shut-down have been largely confined to independent skimming plant owners in the district. Producers in the field, with few exceptions, accepted the clamping down of the lid on production by the troopers in silence, with full knowledge that a yield of more than 1,000,000 barrels of oil daily would have been continued during the last half of August. The field was actually producing above this figure for several days just prior to the issuing of the martial law order by Governor Sterling to be effective on the morning of August 17.

Major companies had virtually obtained a corner of transportation facilities available for the field just prior to the shut-down through having control of all but one trunk line, and successfully diverting tank cars into their service. This corner on tank cars had reached serious proportions on the eve of the arrival of the troops as major companies were taking leases on tank cars at fixed monthly rentals, thus taking "mileage cars" from smaller shippers that could not contract to use a fleet of tank cars over a period because of the uncertainty of the heavy crude movement continuing. Many independent refiners in the Southwest and Middlewest failed to participate in this bargain priced crude because of inability to get tank cars for making shipments.

Until the flood of oil ceased to flow the oil buyers were dictating the terms of purchase contracts in most instances, and because of this situation prevailing many East Texas producers are now tied with oil sales contracts at prices ranging from 20 to 10 cents per barrel loaded on cars that must be delivered from prorated oil allowances. The market was so depressed that producers allowed themselves to be obligated to deliver fixed quantities of oil at low prices in order to keep pace with offset oil drainage, with expectations of fulfilling contracts before state interference took place. Crude prices in the field were headed for lower levels when the shut-down order went into effect, and before the ban was lifted had skyrocketed to 68 cents per barrel in some instances.

Houston Geological Society Goes on Fishing Expedition

Houston.—About 50 members of the Houston Geological Society went August 27 on a deep sea fishing trip, embarking at Galveston. The geologists took advantage of the opportunity to secure samples of shells and deposits of formations from the floor of the Gulf of Mexico. The route which was taken carried the party about 35 miles from land and into water which was about 80 feet deep in places.

EAST TEXAS HIGHLIGHTS

By H. H. KING
Staff Representative

Crude Exchange Arranged

Active solicitors of crude connections in the East Texas field are offering to loan sufficient storage oil to independent operators for the latter to use as fuel in continuing drilling operations during the military shut-down period in exchange for pipe line connections after the production ban is lifted. Many independents that would be shut-down otherwise are able to carry on their development work under this arrangement, and no money changes hands for the fuel used, as those supplying the oil are to be paid back in crude when wells are completed and placed on regular production.

Steel Derricks Appearing

Steel derricks are making their appearance in greater numbers in the East Texas field now that development programs of leading operators have settled down to a routine basis. A number of companies are making drilling contracts whereby contractors are paid $2.50 per foot and the latter furnishing their own derrick, fuel and water. Upon the completion of the well the contractor removes his derrick, and the well owner installs a short steel derrick as a permanent installation. Uncertainty of the flowing life of wells in the field makes it imperative that a derrick be kept over every producer, and operators are adopting the steel type for such service.

Sun Makes Largest Purchase

Sun Oil Company is credited with having made the largest single purchase of storage oil in East Texas, having acquired 280,000 barrels from Cranfill-Reynolds Company on August 19, or the day following the complete shut-down of the field. It is reported that this oil was purchased for 25 cents per barrel in the tanks. Sun Oil Company shipped an average of 2680 barrels of this storage oil daily during the past week by tank cars to its refinery at Toledo, Ohio. Shipments are also to be made to the Gulf Coast through Sun Pipe Line Company's trunk line.

Gasoline Plant Projected

Negotiations were under way early this week for the erection of a large natural gasoline plant in the vicinity of the discovery well of the Longview area, with Roeser-Pendleton, Inc., Arkansas Fuel Oil Company and Yount-Lee Oil Company participating in the project. It is also planned to repressure the Woodbine sand horizon with the residue gas. Purchase of casinghead gas from other lease owners in the area is contemplated, and the price will range from 15 to 25 per cent royalty, depending on the richness of the gas obtained.

Building Gathering System

Root Pipe Line Company, Inc., newly formed subsidiary of Root Refining Company, Shreveport, is constructing a crude oil gathering system in the Longview section of the East Texas field, consisting of about five miles of four and six-inch lines in order to handle crude produced and purchased for the latter's 10,000-barrel daily capacity refinery at El Dorado, Arkansas. The crude will be transported to the refinery over common carrier lines with a trunk line tariff of 20 cents per barrel applying. The main field station on the above gathering system will be equipped with a Denver-Gardner electrically operated pumping unit cap-

able of handling 25,000 barrels daily, according to Horace Canon, vice-president, Root Refining Company. The latter recently acquired a producing lease in the D. Sanches Survey, and is operating same through a subsidiary known as the Dimham Oil Corporation, George G. Moore, Longview, is production superintendent for the company in East Texas.

Plant to Be Built

Heartfield Refining Company, Shreveport, will proceed with its previously announced plans calling for the construction of a 1000-barrel daily capacity skimming plant in the Camps Switch section of the East Texas field after the military ban on production of the field is lifted, according to C. A. Heartfield, president.

Empire Tankage Ordered

Empire Gas & Fuel Company placed a tentative order last week for four 80,000-barrel steel tanks to be erected in Gregg County, but delivery of materials has been held in abeyance. The company planned to erect three of these tanks on the Bumpass farm in the Longview area, and one tank at the Munro station of The Texas-Empire Pipe Line Company.

Unnecessary Arrest Made

Inability of a trooper in General Wolters' army on duty in the East Texas field to understand the markers on a tank gauge pole caused a lease foreman for Shell Petroleum Corporation to put in some guard house duty during the past week. The arrest was made when a militiaman reported 10 feet of fluid in the flow tank, as compared to a reading of only five feet and 10-inches the day previous. The leaseman's freedom was gained when the superintendent of the company convinced officers that the tankage at the well was of the low type and did not have a heighth of 10 feet. The error was due to the militiaman having read the numeral 10 on the pole as feet instead of inches.

Location Made for Tenth Test in Bethany Gas Field

Marshall, Texas. — Location for another upper Trinity test, the tenth if completed that has been drilled to that horizon in the Bethany gas field of Panola County, Texas, was made during the past week by United Production Corporation. The new location is Werner 11, D. B. Lewis Survey, to the east of present deeper production.

The limits of the deeper gas horizon have apparently been defined except to the east by tests drilled to the north, west and south of Bossier and Alvord's Roquemore 8, B. C. Jordan Survey in which headright all of the present nine Trinity gassers are located.

Prevention of salt water encroachment has been one of the problems of this deeper horizon at Bethany just as was the Glen Rose oil sand in Pine Island Caddo Parish, the first Trinity production found on the Sabine Uplift. The gasoline content in Panola County runs approximately 275 to 300 gallons per 1,000,000 cubic feet.

Shreveport. — W. P. Wallace, Trustee's Cunningham-O'Connor 2, NW NW Section 15-17-14, Caddo Parish, within Shreveport's city limits, which had shown considerable gas in the Blossom from 2036.5 feet to 2047 feet, bailed dry without a show of oil, gas or water, at total depth of 2047 feet during the past week and Saturday, August 29, was coring ahead, elevation is 236.5 feet.

NORTH AND WEST TEXAS ▼ FIELD NOTES ▼

Withdraws "High-Priced" Oil From Ranger District Storage

Ranger, Texas.—Crude that ranks with the most expensive in the Mid-Continent is being withdrawn by Prairie Oil & Gas Company from its Haggerman tank farm in the Ranger district at rate of 15,000 to 20,000 barrels daily for movement north through Prairie Pipe Line Company's system. Withdrawals have been underway since about August 1, and more than 500,000 barrels have been taken from the company's tank farm in this district. Stocks on August 1 were credited with being 3,750,000 barrels, and the bulk of this oil has been standing since the early days of the Ranger field, involving an original posted price of $3 and $3.50 per barrel. Shrinkage losses, taxes and insurance have greatly added to the original cost of this storage oil, which is one of the principal sources of taxation for Eastland County. It is understood that this storage oil is being delivered to middlewestern refineries of Sinclair Refining Company as provided in the pre-merger agreement between Prairie and Sinclair interests.

North and West Texas Show Continuous Production Drop

Wichita Falls, Texas.—A production decline for eight consecutive weeks has been sustained by North and Central West Texas because of the natural decline of old wells and absence of any appreciable volume of new production to offset the drop, while the shutting down of many properties for better prices also contributed to the slump. The districts averaged 75,160 barrels daily during the past week, or 12,470 barrels less than the daily yield eight weeks previous. More than 2,000 wells have been placed on the inactive list, or plugged during this period. The new price schedules afford a profit on nearly all classes of pumping wells, and many operators are taking steps towards reconditioning their wells in order to restore them to maximum output in view of the fact that buyers are asking for the oil.

A slight increase in new tests in both the Wichita Falls and Ranger areas took place within the past week, and a gradual resumption of field work is anticipated in all areas offering proven locations for drilling. In the latter area a sizeable drilling campaign is getting underway near Strawn in search of gas production, which can be readily marketed with Lone Star Gas Company at three cents per 1000 cubic feet. A recent 12-hour open flow and pumping test given the 25 shallow oil producers in the Burkett pool, Coleman County, revealed a daily potential of 4200 barrels. The pool is still being prorated to a flat allowance of 25 barrels daily per well by The Texas Company, which is the only purchaser.

Los Angeles.—Southern Fuel Company will soon complete its 26-inch natural gas line between Kettleman Hills and Long Beach, California. This line traverses the difficult Ridge Route between Grape Vine and the San Fernando Valley and will furnish an additional outlet for gas from California's premier field. It will primarily care for wholesale needs, but will also be used to supply domestic consumption when necessary.

South Texas Field Developments

EARL POST, ***Staff Representative, San Antonio, Texas***

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Several Tests in Mirando Area Hold Wide Interest

San Antonio, Texas.—While operations in the Mirando district are rather slow, several tests in proven and wildcat areas are holding considerable attention.

McCaldin, Owen and Newton's Garza 1, located on block 2, Share 2, Survey 161, Zapata County, 4½ miles south of the Henne, Winch and Farris pool, showed two tribbles of fluid on a drill stem test at 1837-47 feet, which indicate a producing well. The top of the test was oil and mud, while the lower was oil and salt water. No announcement has been made of plans for the well.

O. W. Killam brought in Cuellar 43-B, Survey 277 of Zapata County in the Cuellar extension of the Jennings field for 90 barrels of oil per day at 1839 feet.

Southern Gas Utilities Company-E. A. Sterling & Company's (Henne, Winch and Killam) de la Garza 1, on block 12, Survey 336 of Webb County, in the Carolina-Texas field, encountered a sand at from 2560 to 2570 feet, with casing set at 2560 feet. The gas tested indicated this well as a big gasser.

Duval County Has One New Operation and One Producer

San Antonio, Texas.—One producer and one new operation were recorded in Duval County during the week.

Duval Oil Corporation's Bishop Land and Cattle Company 3, Section 135, in the southwest extension of the Schoolfield and O'Byrne pool, was completed at 2346 feet for an initial production of 75 barrels. The top of the sand was 2312 feet and the 6⅝-inch casing was set at 2310 feet.

The new operation was Camp and Stanolind Oil & Gas Company's Hubbard 3, which is located 660 feet from the west line and 330 feet from the south line of Section 73, BS & F Survey. It has spudded. Location for Hubbard 2, 330 feet farther east, has been abandoned.

The deepest well in Southwest Texas is in Duval County. It is Humble Oil & Refining Company's Kohler 50, in Survey 164, Kohler pool, now making hole at 7646 feet.

Saxet's List of Active Wells Increased to Four

San Antonio, Texas.—The Saxet field of Nueces County gained another operation during the week to bring the total number of active wells to four. Interest in this area was furthered by the showing in Nueces County's only wildcat.

Stanolind Oil & Gas Company's Charles Stratton 1, a wildcat test in the extreme southwest part of the county, is preparing to complete in gas sand that showed for a producer on drill stem test. The sand was found at 4746 feet and cored to 4752 feet, where a drill stem test developed a pressure of 200 pounds in less than five minutes. The test showed no water.

The well is in Section 12, Stratton Subdivision, P. Anchow Survey, about six miles south and a little west of the Agua Dulce field in Nueces County. The producing horizon in the Agua Dulce field is at an average depth of 2000 feet. A mile or more east of the Agua Dulce field are two wells, the Comstock 1, which is making both oil and gas, and the Ollie Purl 1-B, which is making gas. These wells both belong to Houston Oil Company and are 4900 feet deep.

Gulf Coast Oil Company is drilling the plugs in its Maggie Harrell 1, in the Saxet field of Nueces County at 4555 feet. The well should be completed within a few days. The same company's Elder 1, in the same field, has surface casing set at 482 feet and is waiting on cement.

Saxet Oil & Gas Company's McCampbell 1, in the main field, is building a derrick. Kepley Production Company et al's Roark 1 has spudded. It also is in the Saxet field.

Humble Establishes New Gas Structure in Refugio County

San Antonio, Texas.—A new gas structure was established in Refugio County by Humble Oil & Refining Company's O'Conner 1. The well developed 800 pounds pressure in three minutes on a three-eighths-inch choke on a drill stem test of a sand at 2300-09 feet. A second sand was found at 2328-49 feet, but drill stem test showed only a small amount of oil and gas; too little to indicate commercial quantities.

The well is located 12,625 feet from the south and 7225 feet from the east line of the John Keathing Survey. It is in the northern part of the county, about one mile from the San Antonio River and the Refugio-Victoria County lines. It is more than four miles west and a little south of the McFadden gassers in southern Victoria County.

The test is drilling ahead, however, and will test the lower horizons. No announcement has been made of the expected total depth of the test.

In the main Refugio field, Pearson Properties, Inc.'s Ryals 3 has been completed as a gasoline well at 6450-57 feet, making 136 barrels through quarter-inch chokes and under a pressure of 1800 pounds.

United Production Company's Lambert 4 in the Refugio field was last reported to be drilling a sand at 4129 feet, after setting 3966 feet of casing Moody-Seagraves Producing Company is preparing to re-complete O'Conner 4, which has been plugged back to 6431 feet. Mission Drilling Company is drilling at 6598 feet in a sand showing a little gas. The well is the O'Brien No. 1, a workover.

Extension Provided Shallow Pool Near Rio Grande City

San Antonio, Texas.—An extension was provided for the shallow oil pool eight miles north of Rio Grande City in Starr County last week by the completion of Hooks and Weaver's Kelsey Bass 1, for an initial production of 30 barrels daily on pump. The well has a total depth of 465 feet, and is located on block 5 of a subdivision of Porcions Nos. 75-76-77, in the Jurisdiction of Carmargo.

Unusual Edwards Lime Well Completed Near Darst Creek

SAN ANTONIO, Texas.—John F. Camp's Sue Denman 1, Guadalupe County wildcat, located slightly over one mile southwest of nearest production in the Darst Creek field, is generally accepted as the discovery well of a new Edwards lime pool rather than an extension well of the Darst Creek producing area.

Evidence of such opinion is indicated in the fact that it has been decided not to retain the new well under Darst Creek proration rules but to place it into a separate new unit for proration purposes, the new area to be designated as the Camp pool.

The decision to create a separate proration unit was made after the well had flowed for three days in accordance with the Darst Creek conservation program under which it had earned a daily allowance of 925 barrels. It showed potential daily production of 6000 barrels on a two-hour test, flowing through a four-inch gate valve half closed. Engineer observers estimated that the well could produce as much as 9000 or 10,000 barrels daily on open flow. On the test the well registered 220 pounds pressure, as against a maximum of about 125 pounds shown on completion by regular Edwards lime flowing wells in the Darst Creek field proper. The crude from the Camp pool well has corrected gravity of 32.5 degrees, while regular Darst Creek crude ranges from 35 to 36 gravity.

The discovery well of the new area is 5500 feet southwest of the nearest Darst Creek producing well and it is off the trend of production in that field. The location is 450 feet north of the highway and 150 feet from the east line of a 50-acre tract in the William Arrington Survey.

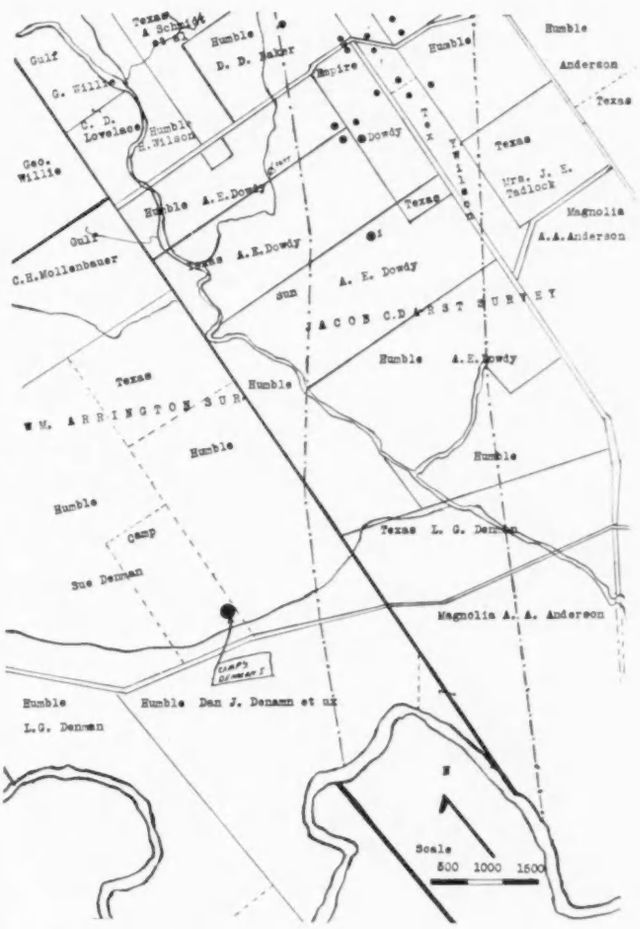
The tract was taken over from Humble Oil & Refining Company from its large block for development purposes, and that company holds all offset acreage, while The Texas Company, Magnolia Petroleum Company and Sun Oil Company have practically all the remaining leases in the vicinity.

The well appeared to be a freak from the very beginning. Formations started to run low and the test was drilled to 2495 feet, where it still was in the Taylor marl. At this point, it cut the fault and went into the Edwards lime. The result was that it had faulted out the Austin chalk, Eagleford, Buda, Del Rio and Georgetown formations found in the other wells in the field. The faulting in the well caused the bit to penetrate the Edwards lime 24 feet higher than The Texas Company's Dallas Wilson 1, discovery well of the field, two miles to the north. The Texas Company's well made an initial flow of 2400 barrels.

The new producer, after topping the Edwards lime at 2495 feet, was drilled to a total depth of 2507 feet and a drill stem test made. The test showed two fourbles of oil and three more fourbles of mixed oil and mud. The 6⅝-inch casing was set at 2493 feet. When first brought in, the well showed a fair production, but constantly increased. When the gauge was made after the well had flowed a short time, it registered 341 barrels an hour or a total of 8184 barrels daily. It is said, however, that the well likely would further increase its flow should it be allowed to flow open for a while. It has been pinched in to about 50 barrels an hour.

The nearest producer is Sun Oil Company's Dowdy 1, in the northeastern corner of the 111-acre lease in the Jacob Darst Survey. This well was completed March 21 for an initial production of 88 barrels of oil and 58 barrels of water on pump. The well topped the Edwards lime at 2587 feet and was drilled to a total depth of 2593 feet; 6⅝-inch casing was set at 2570 feet. This well had the top of the chalk at 2208 feet and went out of the formation at 2389 feet; it is slightly more than a mile to the northeast of the new Camp producer.

In comparing the Camp well and the Sun producer, disregarding elevations, the new producer went out of the



The map shows the southern tip of the Darst Creek field and wildcat area to the Guadalupe River. At the very top of the map is The Texas Company's Dallas Wilson discovery lease. The producing trend of the field, recognized by most geologists, is indicated by the two dotted lines down the center of the map. Sun Oil Company's Dowdy producer is shown in the center of the recognized producing boundaries, while the Camp well is nearly 1500 feet to the west.

Taylor marl 187 feet deeper than the Dowdy 1, yet topped the Edwards lime 92 feet higher. The Dowdy 1 showed 40 per cent water, while the Denman 1 is making pipe line oil.

Humble Pipe Line Company's line has been extended from the main field to run the oil from this new producer.

While no announcements had been made late in the week, it is likely that Humble Oil & Refining Company will drill its necessary offset immediately. Other wells likely will be sunk between the new producer and the main field in hope of proving a southwest trend to the lower end of the producing district.

The new well is practically midway between the Darst Creek field and the Guadalupe River and indicates production to that point if not across it.

This producer is probably the most prolific ever completed from the Edwards lime in South Texas. Several wells have neared this figure, but their actual gauges have never come up to this level. The largest well ever completed in the entire Southern Balcones Fault district was Magnolia Petroleum Company's M. E. Roamell 1, in the northwestern portion of the Darst Creek field. This well hit a crevice in the Austin chalk at 2322 feet and was completed for an initial flow of 41,092 barrels. Other large wells were completed from crevices at Darst Creek and Salt Flat in Caldwell County, but their flow was short lived. On the contrary, the Edwards lime production has been surprisingly stable. The Camp well struck a crevice at 2390 feet, but showed nothing on a drill stem test. The well was then drilled through to the lime.

Slightly more than four miles south and east of the Camp producer, Walton, North, Adams and Lyles' Anton Zobrowoski 1 made a producer June 29 in the Austin chalk at 2178-2212 feet. The well has been shut down since that time and has been flowing at the rate of about eight barrels daily. It likely will be carried to the Edwards lime.

The Zoborowoski 1 is located in the J. D. Clements Survey, 500 feet south of the Guadalupe River and five miles due south of the Darst Creek field. Its connection with the Camp well, if any, will be revealed through future drilling.

Plan New Test for Holsmark Gas District of Bee County

San Antonio, Texas.—A new test is to be drilled in the Holzmark gas district of Bee County, opened earlier in the year by Simms Oil Company. The test is J. C. Hughes' P. H. Martin et al 1, in the John Lyford Survey, approximately 900 feet south of the Simms' Holzmark 1, in the James York survey. Materials are being moved on. The well will test out the formation at 3542-52 feet, where the Holzmark made a 50,000,000 cubic foot gasser, showing 1600 pounds rock pressure and 900 pounds working pressure on an open four-inch line. The gas was rich in gasoline content, showing as high as seven-tenths gallons per 1000 cubic feet of gas.

In the Pettus field, in the northern part of the county, United Production Company's Ray 39, northeast of the producing area, is making rapid progress. At last reports the well was below 4500 feet and drilling away.

Torrington, Wwo.—Another of the many small refineries springing up in the Rocky Mountain states which opened recently is Goshen Oil Refining Company's plant at Torrington, in eastern Wyoming. The new plant is manufacturing gasoline, kerosene, tractor and furnace fuel. It is independently owned and operated, and the products are disposed of locally.

Little Activity Reported For District Near Victoria

San Antonio, Texas.—Nothing exciting was reported from the highly interesting Victoria district during the past week. Houston Oil Company's Konrad 1, five miles northeast of Victoria, was waiting on cement after setting 8¼-inch casing at 4750 feet; total depth is 5003 feet, where gas was encountered, with heaving shale at the bottom of the hole.

In the gas area of southern Victoria County, The Texas Company's McFaddin 3 was drilling below 3850 feet after testing salt water at 3540-44 feet. Four good sands have been tested so far in this well, some of them being entirely new horizons. United Production Corporation's McFaddin 5-A, was drilling hard sand at 2268 feet.

Set Casing at 3050 Feet In Nacogdoches County Well

Houston.—Ginter et al, drilling Neil Wells 1, a wildcat well in Nacogdoches County, last week set casing at 3050 feet after having logged an oil sand containing "high pressure." The test is located 15 miles southeast of Nacogdoches.

In the same county, Vitex Combined Oil Group abandoned its M. B. Hayter 1 slightly above the same depth after having been shut down since early June. This test is located seven miles west of Nacogdoches in the M. de Santos Coy Survey.

Tex-Okla Oil Corporation, drilling R. T. Driver 1 in the Patricia de Torres Survey, 12 miles southeast of Nacogdoches, is shut down at about 2790 feet after a negative drill stem test of formation between 2440 and 2500 feet.

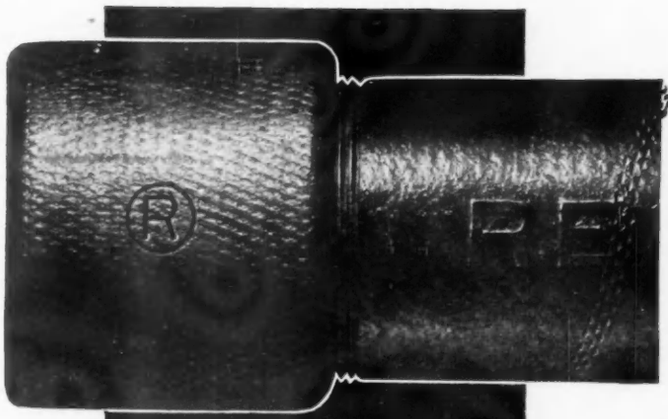
Fire Fighting Water Nozzles Shown in Action in Houston

Houston.—Representatives of Fog Distributor Corporation in cooperation with the city fire department of Houston gave a public demonstration here August 27 showing the company's special fire-fighting water nozzles in action, the exhibition being staged on the site of an abandoned refinery.

While a large group of spectators looked on, including engineers of various oil companies, an oil-filled steel tank comparable in diameter to the usual 1000-barrel lease tank, was ignited, and when the burning oil was well under way the water spray was turned upon it, and the blaze was extinguished within a few seconds. A fire truck of the city was on the scene, and the pumps on the truck provided the water, taking it up from a small tank placed on the site. The water hose used in extinguishing the fire was handled by a representative of the fire hose nozzle manufacturers, aided by one of the firemen.

After the fire was extinguished the oil was ignited again several times, the blaze being extinguished in each instance with a different type of nozzle, and the operation in each case requiring only a brief time.

These nozzles convert the stream of water into a dense fog, finer than a spray, affording maximum surface area of water exposed to contact with the fire, and thus giving the water maximum heat absorption, cooling the burning material below the kindling point. As the heat is absorbed, steam is generated in the space between the fire and the burning material, furthermore, and oxygen is excluded, resulting in some smothering action along with the heat absorbing and cooling action. Fog Distributor Corporation, headquarters of which are in Los Angeles, has an office in Houston in charge of Paul Reid.



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Gulf Coast Field Developments

JACK LOGAN, ***Staff Representative, Houston, Texas***

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Complete Fifth Producer at Thompson Dome, Ft. Bend County

Houston.—Thompson dome of Fort Bend County, sometime classified as Lockwood field, sometime as Clear Lake field, this week added its fifth successful producer since Cullen and West undertook development of the prospect for Gulf Production Company.

Cullen and West and Gulf Production Company's Lockwood-Sharp 2-A was completed slightly below 3160 feet this week for an initial production estimated at 175 barrels of oil and 8,000,000 feet of gas. The production flowed through a string of 2½-inch tubing after about 90 feet of 4½-inch screen had been landed on bottom. Initial production of this latest completion does not tally favorably with that of the four completions which preceeded it.

Completion of Lockwood-Sharp 2-A contributes an important geological fact. Three wells drilled subsequent to the discovery well, extending 2400 feet in a south and west direction, indicated a dip of 50 feet in 2400 feet. The latest completion, located about 800 feet north of the discovery well, indicates a dip of 100 feet in that 800 feet of northerly extension.

Production at Thompson dome for the week ending August 29 was 2600 barrels, according to American Petroleum Institute preliminary estimates. All this production is coming from the above operator's five wells: Lockwood 1, Lockwood-Sharp 1-A, Lockwood-Sharp 2-A, George 1 and Lockwood 1-B.

Locations have been made for Lockwood-Sharp 3 and George 2, the latter of which already has spudded.

Oil Show in Brazoria County Test Attracts Wide Interest

Houston.—Considerable interest was being shown during the week ending August 29 by oil scouts in the showing of oil and gas reported in a Brazoria wildcat well being drilled near the town of Manvel by The Texas Company.

The Texas Company's Belcher 1, located southeast of Manvel, 157 feet southeast of the northwest line and 223 feet northeast of the southwest line of Lot 18, Block A, Suburban Gardens division, made a drill stem test at 5461 feet. At a depth of 5481 feet, Belcher 1 was being prepared to receive 9⅝-inch casing.

About 1500 feet northwest of Belcher 1, The Texas Company drilled a deep test, Ewing 1, which recorded one small show of oil and later was abandoned as a dry hole at 7648 feet.

Drilling Is Active on East Flank of Barbers Hill Area

Houston.—Drilling is active on the east flank of Barbers Hill field in Chambers County as a result of completion a few weeks ago of The Texas Company's Wilburn 6 in that sector. The initial production of Wilburn 6 was 3800 barrels; daily production of the well this week was gauged at 2740 barrels.

Humphreys Corporation, The Texas Company, McAlbert Oil Company, Mills Bennett Production Company and Gulf Production Company announced new locations in the east sector immediately after completion of The Texas Company well in what was believed an upper sand.

Humphreys Corporation's Kirby H-8 is drilling below 1120 feet in shale. The Texas Company's Wilburn 7 is rigging up. McAlbert Oil Company's Wilburn 4 is drilling in rock below 975 feet. Mills Bennett Production Company's J. F. Wiburn 5 is drilling below 850 feet in gumbo, while Gulf Production Company's Wilburn 5 has passed the 1200-foot mark.

Production is expected around 4509 feet, the depth at which The Texas Company completed its Wilburn 6.

Houston County Test Near Lovelady Has Show of Gas

Houston.—Oil scouts this week verified a reported show of gas in Apex Drilling Company's Thompson Brothers Lumber Company 1, wildcat well six miles south of Lovelady in Houston County.

The last of August the well shut down for a drill stem test at 1300-1312 feet, where the gas was encountered. Drilling has been resumed, and at last reports Thompson Brothers Lumber Company 1 was drilling in lignite at 1439 feet. A previous show of gas was reported in the prospect at a depth of 396 feet.

Eight other wildcat tests in Houston County are shut down at present. The show of gas in Apex Drilling Company's well, however, may cause a temporary revival of activity in the county.

Houston.—W. H. Wallace of Corpus Christi, reported to have pronounced a section of the J. N. Lee land south of Lissie in Wharton County a dome, is moving a drilling rig on the site for an oil test. Derrick is under construction and drilling will begin early in September, according to advices received from Eagle Lake.

Rose-Texas Oil Company has two wildcat locations in the Stephen F. Austin Survey of Wharton County on the M. S. Floyd land.

Houston.—H. C. Tennant, independent operator of Fort Worth, has announced intention of drilling a deep test in that section of San Augustine County located seven miles northwest of San Augustine on the 5000-acre Greer and Downs tract.

Four tests were drilled in the vicinity in 1902, none of them going below 1000 feet. The contract of the Greer and Downs test, however, specifies it shall be drilled to a depth of 4000 feet, or until the Georgetown lime is encountered.

Houston.—Abandonment this week of Pollock Oil Company's Sessions 1 in Angelina County, one-half mile west of Cherokee, at depth of 4000 feet, leaves but one active wildcat well in that district. R. D. Moore's Abney Estate 1, located 50 feet north of Block 6, just out of the city limits of Lufkin, has recemented 6⅝-inch casing at 1340 feet after having encountered a show of oil at about that depth.

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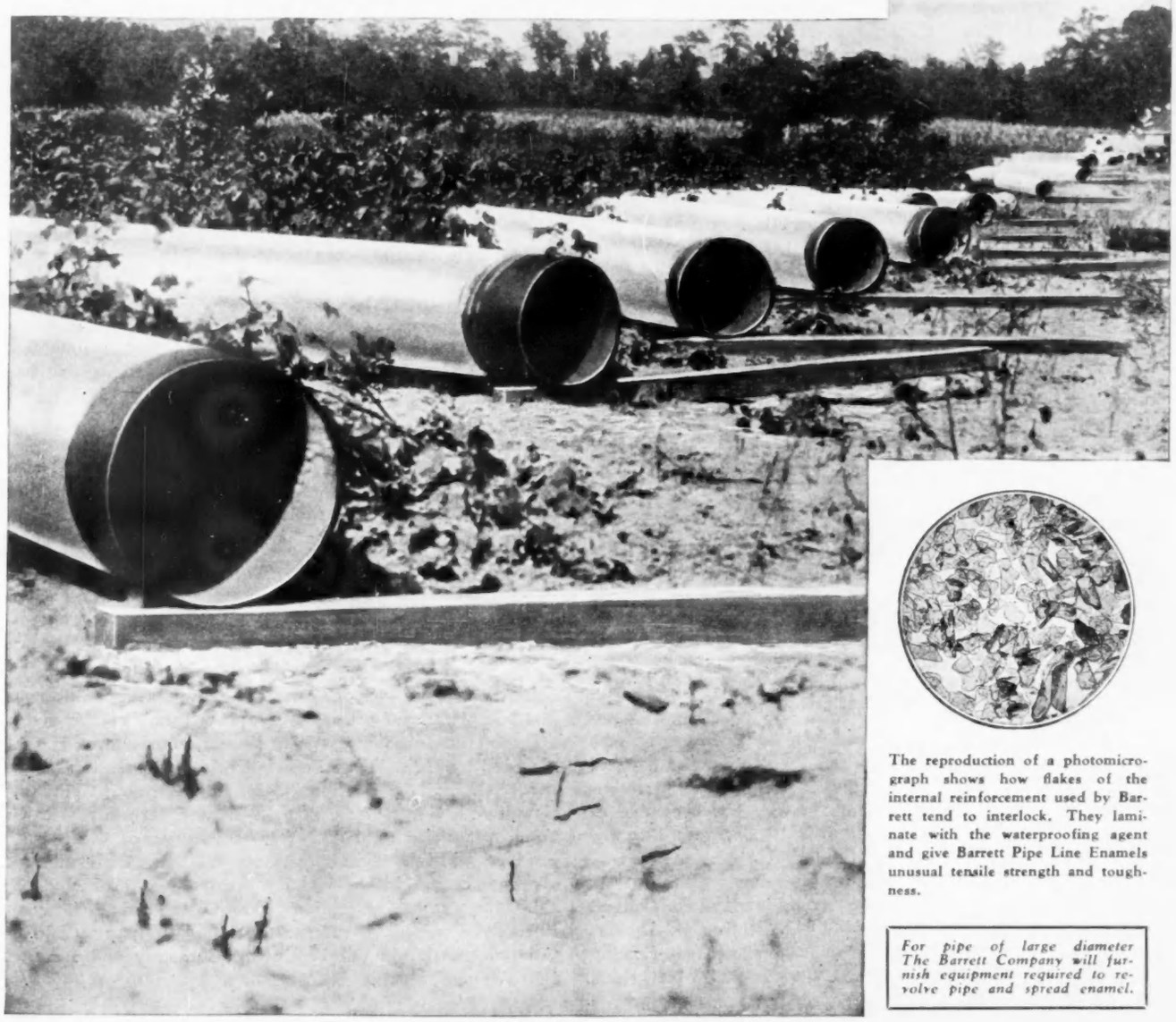

The reproduction of a photomicrograph shows how flakes of the internal reinforcement used by Barrett tend to interlock. They laminate with the waterproofing agent and give Barrett Pipe Line Enamels unusual tensile strength and toughness.

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Louisiana--Arkansas Field Notes

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Nine Locations Announced For North Louisiana Area

Shreveport.—Nine new locations were announced during the past week in North Louisiana, five of them for the Zwolle field of Sabine Parish. Loring Oil Company made two locations in the recent 1½-mile southwest extension of the southeast part of the field which was opened when this company's Bowman-Hicks 17 in Section 16-7-12, was completed as a 1500-barrel flowing well in the chalk after being spudded for a 6000-foot test. The two new locations are Bowman-Hicks 18, SW NW Section 15-7-12, where derrick is up, and Bowman-Hicks 19, SW NE Section 16-7-12. The latter probably will be a 6000-foot test if it does not show for a good producer in the chalk. Pelican Natural Gas Company has derrick up for Louisiana Long Leaf 10, NW NE Section 10-7-11, and W. M. Coates made location for Sabine 5, NW NW Section 1-7-12. The same operator has derrick up a fourth of a mile west of the four producers in Section 1-7-13, the new location being Towery 1, NE SE NW Section 1-7-13.

United Gas Public Service Corporation made three locations for tests in the Richland gas field and Carbons Consolidated made a location in the Morehouse Parish part of the Monroe gas field.

Slow Progress Being Made In Smackover's Deep Test

Shreveport.—Lion Oil Refining Company and associates made slow progress during the past week on their 6000-foot test, the first really deep operation for the Smackover field, Guy P. Hayes A-9, NE NE Section 4-16-15, Union County. Early in the week a fishing job for a chain tong pin delayed the operators at 5154 feet. Later the pin was recovered. Late in the week broken lime was cored from 5434 to 5236 feet and the drill stem was hung but later loosened. Mud was being changed late in the week after the drill stem was dislodged.

Shreveport.—J. W. Cooper and associates during the past week abandoned Cooper 1, NW SE Section 35-10-11, Natchidoches Parish, as a dry hole at total depth of 3156 feet. The well bailed dry in sandy shale at 2908 feet, after a slight show of oil. The test had been inactive for several months.

New Southwest Extension at Zwolle, Proves Consistent

Shreveport.—A recently opened mile southwest extension of the Zwolle townlot part of the Zwolle marl and chalk rock field of Sabine Parish is proving to be the most consistent "spot" of this field, whose history has been one of inconsistency, good flowing wells often being offset by dry holes and vice versa.

During the past week the fourth producer of four tests drilled in the new offshoot was completed when Dengail Oil Company's Nulton 1, SE NW NE Section 1-7-13, was completed in the chalk at total depth of 2368 feet flowing 255 barrels of oil daily. Marl was topped at 2075 feet, chalk at 2111 feet and six-inch casing was cemented at 2090 feet. All four producers in this quarter section are of about the same initial.

W. M. Coates' Bowman-Hicks 1, NE SW Section 2-7-12, which showed enough oil at 1670 feet in the basal Wilcox to fill the pit and ditches, was completed during the past week after bailing and swabbing, making an estimated 10 barrels of oil per hour. Total depth is 2821 feet. Marl was topped at 2230 feet and chalk at 2300 feet, six-inch casing being set at 2232 feet.

Clay County, Mississippi, Test Is Finally Abandoned

Jackson, Miss.—Ohio Oil Company's Cantrell-School Board 1, NE NE Section 16-1-5e, Clay County, Northeast Mississippi, which had a gas show estimated at 50,000 cubic feet daily in the Mississippian at depth of 4477 feet, was abandoned during the past week as a salt water hole at total depth of 4689 feet in sand in the same series. Elevation was 270 feet. This test, which is approximately 25 miles southwest of the Amory gas field in Monroe County, had been drilling for several months and hard formations encountered had made the operation expensive. Unofficial estimates place the cost between $75,000 and $100,000.

Fifteen and a half inch surface pipe was set, with a string of 13⅜-inch at 1389 feet and 9⅝-inch at 2929 feet. Plans had been made to set a string of 6⅝-inch where the gas show was encountered but it was never set; 3214 feet of liner being run at 4385 feet to shut off caving hole.

However, another test may be drilled in the same general locality by the company which has extensive holdings in that part of the state.

In Jefferson County, Southwest Mississippi, M. M. Stokes abandoned School Board 1, SW SW Section 14-10n-2w, as a dry hole in gumbo at 2302 feet; 12-inch casing had been set at 125 feet and tentative contact of the Claiborne was placed at 1300 feet.

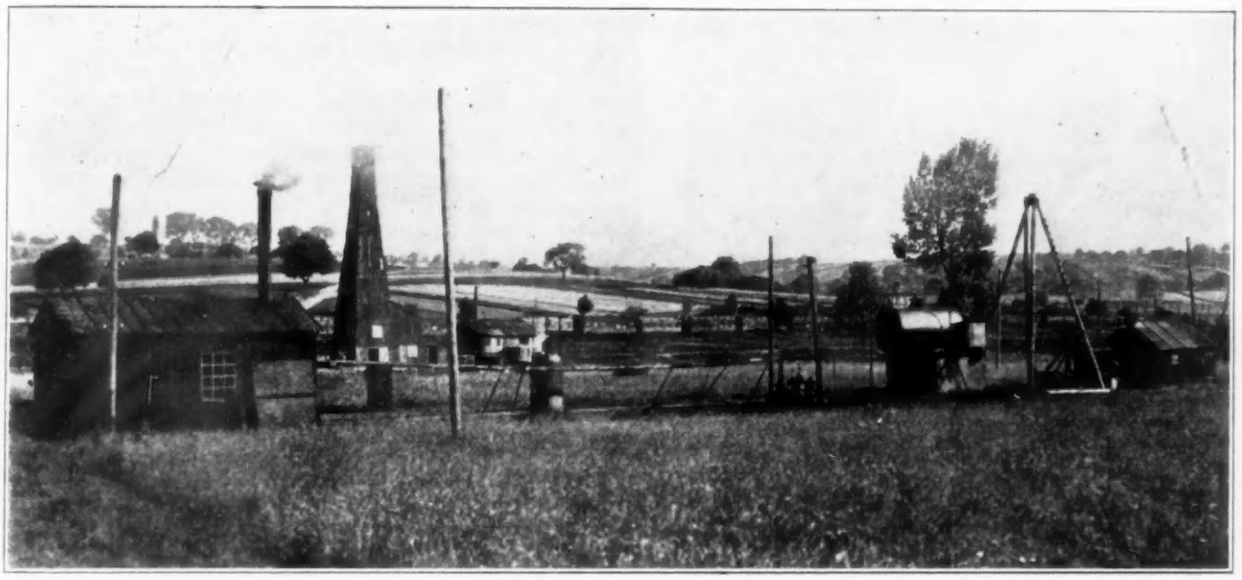
One new location was announced for the Jackson gas field during the past week, this being Meredith and associates' Allen 1, SE SW Section 12-5-1e, Rankin County, within the Jackson city limits in the southeast part of the field. Rigging up is under way.

Complete Seismograph Tests On Eastern Jackson Gas Area

Jackson, Miss.—Geophysical Research Corporation has just completed a short seismograph program on the eastern slope of the Jackson gas field in a triangular area roughly bounded by United Gas Public Service Corporation's Hartfield A-1, SE NW Section 7-5-2e, Gulf Refining Company's Hamilton 1, SW SW Section 4-5-2e, and Jackson Oil & Gas Company's Patton 1, SW NW 17-5-2e, none of which was a producer. Light dynamite shots were used. Companies owning acreage in the vicinity of area worked include besides the companies named, Lion Oil Refining Company, Pure Oil Company, Arkansas Fuel Oil Company, Ohio Oil Company, Atlantic Oil Producing Company and Amerada Petroleum Company.

INTERNATIONAL PETROLEUM IN REVIEW

ROY E. LEIGH, *Foreign Editor, New York*



Old surface operations, Pechelbronn, France

Chilean Government to Force Mixture of Alcohol with Gas Santiago, Chile—The present administration is definitely committed to a policy of development of home industries, and has submitted to congress a legislative proposal requiring that all gasoline sold in the republic must be mixed with a fixed percentage of domestic alcohol. The bill as now outlined contemplates the control of prices, with the purpose of prohibiting any substantial increase in retail prices as a result of this requirement.

Observers have expressed the opinion that this bill will be enacted into law, despite objections from the oil industry and from motorists as well.

Alcohol Mixture Reqired in Latvia Rega, Latvia.—A new law, requiring a mixture of 25 per cent absolute alcohol with gasoline for use in internal combustion engines, is expected to become operative during September.

The government has approved the purchase of equipment to dehydrate alcohol produced locally from potatoes, and alcohol is expected to be available from this source about September 1.

Scottish Shale Mines To Be Closed Down Edinburgh, Scotland.—Scottish Oils, Ltd., subsidiary of Anglo-Persian Oil Company, Ltd., has announced the closing of certain of its shale pits and retorting plants which are unable to earn a profit under present conditions. This action marks the failure of efforts made jointly by the company and its employees to induce the government to subsidize the Scottish shale oil industry, which was described as the only internal source of British fuel oil supplies.

It was pointed out water encroachment probably will prohibit the reopening of the mines in future, and that the closing of the retorts will practically ruin the machinery.

This action on the part of the government-controlled company does not mark the complete abandonment of the shale oil industry, but rather a program of drastic retrenchment.

Venezuelan Oil's Production Increased Maracaibo, Venezuela.—Venezuelan Oil Concessions, Ltd., Royal Dutch-Shell subsidiary operating in the Maracaibo District of Venezuela, reports a daily average production of 13,113 metric tons (about 91,800 barrels) during the week ended August 22. This represents a slight increase over figures for the preceding week, and a decline of 3000 tons (about 21,000 barrels) from the daily average during the week ended August 23, 1930.

International Trade in Petroleum Revived New York.—A masterly analysis of international trade in petroleum, by F. J. McCarthy and Martha M. Taylor, of the Bureau of Foreign and Domestic Commerce, reveals that: "During the past decade there has been a rapid increase in world demand for gasoline and the United States has exported an increasing volume each year. Its proportional share of the international trade, however, has declined just as steadily."

Volume figures collected by the Bureau show that the export trade of the United States doubled in respect of gasoline and increased by 53 percent in the sale of crude oil to foreign consumers during the period 1925 to 1930, inclusive. This would be a very favorable showing were it not for the fact that it was eclipsed by the records of other oil-producing countries.

During the same period, to mention only the most out-

standing examples, Russia's export sales of gasoline increased by 55 per cent and annual shipments of crude oil from Venezuela and Colombia increased fourfold.

During 1925, the United States enjoyed 67 percent of the international trade in gasoline, as represented by totals reported by the 10 leading oil-producing nations of the world; but, as Russian, Venezuelan, and East Indian exports increased, this percentage declined to only 50 percent during 1930.

"The great growth in world exports is principally to be found in the advance of the petroleum industry and trade of the Netherlands, West Indies, Russia, Persia, and Rumania," according to the authorities quoted above. "Russia's proportional gain in the market has been larger than that of any other country; its exports surpassed those of the Netherlands East Indies in 1930."

"Roumania's exports have recorded a quantitative gain every year of the decade except 1922, with an accompanying increase in percentage share in the later years.

"Although the United States is still the largest producer of crude petroleum, at no time during the past 10 years has it been the largest exporter, owing to a preference for shipping refined products. However, it has been important in this trade throughout its development. There have been several shifts in the order of this list in recent years; as recently as 1926 Mexico exported more crude oil than any other country, but in 1929 it was in fourth place, surpassed by Venezuela, the United States, and Colombia, and in 1930 it was being approached rapidly by Persia, which is increasing its exports while those from Mexico are reduced.

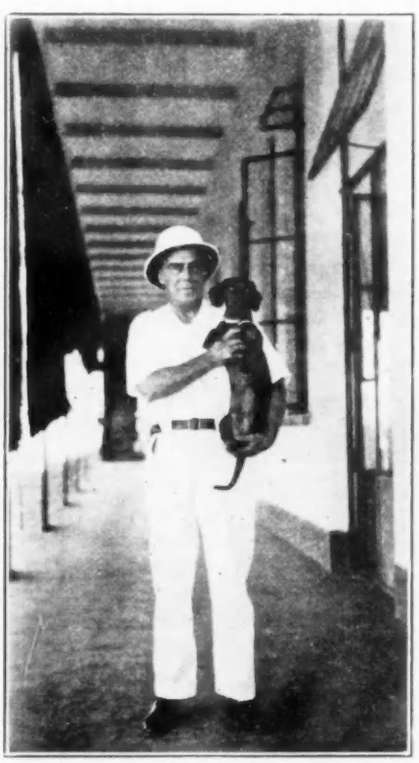
"In the case of Mexico, there was an actual loss in quantity of export as well as in position, but some of the developments have contrasted these aspects. Both Colombia and Persia, continuing to push forward the quantity of their crude shipments, have declined in proportion to the total exports. Exports of crude from the United States in 1930 showed a decline of 10 percent in actual quantity from 1929 shipments; previously, both volume of shipments and rate of increase had been improving, so that the drop was sudden.

"Considering Russia's recent advance in production, its position as an exporter of crude is low, but in 1930 it increased the 1929 figure by 45 percent. In recent years Russian output has been third in world importance, following the United States and Venezuela, and the early months of the current year show a larger production in Russia than in Venezuela. The Soviets, however, are cultivating the world market for products rather than for crude, and are only eighth in importance among crude exporters.

"The United States is second in both exports and imports of crude oil, notwithstanding its status as largest petroleum producer in the world. Its preference for exporting petroleum in product form explains why a smaller producer surpasses it in crude exports, and the Netherlands West Indies, furthermore, has taken first place as an importer largely because of its proximity to the Venezuelan production. Except in 1928 the United States has recorded a yearly reduction of crude receipts, but the 1928 increase was considerable, and after two subsequent declines the 1930 receipts were still larger than those for 1926.

Burmah Oil Company Officials in Upper Burma Enjoy Their Pets

B. R. Emrick
Technical Adviser, Khodaung



Joe R. Grove
Drilling Superintendent, Khodaung

N. G. Calder
Pipe Line Station Engineer, Yenangyaung

Completions for Past Week in U. S. Fields

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CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
LONG BEACH—		
Richlin Oil Co., No. 1	1900	7958
WEST COYOTE—		
Standard Oil Co., Emery 48	235	4320
KETTLEMAN HILLS—		
Kettleman No. Dome Assn., Continental 41-2P	1750	7879
Associated Oil Co., Whepley 2, 35-21-17	12,981	8789
BELRIDGE—		
Standard Oil Co., McPhail 1, 36-27-20	*	4528
McPhail 2, 36-27-20	*	5671
WEST COYOTE—		
Standard Oil Co., Emery 49	240	4260
Murphy-Coyote 107	300	4375

KANSAS

CHASE COUNTY—		
Kingwood Oil Co.'s Elliston 2, c se se 21-19-6e	¶9	515
COWLEY COUNTY—		
Sooby & Prairie O&G's Bowman 2, cnl se 8-32-5e	*	740
Home Natural Gas Co.'s Stevenson 1, c sw ne 24-33-5e	*	615
FRANKLIN COUNTY—		
Fields et al's Usher 1, se c 35-16-17e	*	1185
GREENWOOD COUNTY—		
Phillips Pet. et al's Beal 7, se c ne 28-23-11e	400	1893
McPHERSON COUNTY—		
Ritz O&G and Shell's Koehn 1, se c ne 16-21-3w	360	3015
Plains Oil & Shell's Unruh 1, nw c ne 6-20-1w	1155	3412
McPherson O&G and Shell's Meyers "B" 4, c sw se 14-19-2w	¶6½	2884
Fleming 2, c nw nw 11-19-2w	¶7¾	2914
Beard Drlg. Co. & Tidal Oil's Day 1, sw nw sw 32-19-1w	¶3	2935
W. C. McBride, Inc.'s Whitwright 2, nw c sw 30-19-1w	2560	3406
Darby Pet. Co. & Shell's Kaegi 2, sw se ne 20-19-1w	¶45	2916
SEDGWICK COUNTY—		
Magnolia Pet. Co.'s Wheeler 5 (owd) sw ne ne 19-27-2e	880	3255
STEVENS COUNTY—		
Texas Interstate Pipe Line et al's Renfrow 1, c se 7-33-37w	¶2	2562

OKLAHOMA

MUSKOGEE COUNTY—		
J. L. Haner et al's Steadham 6, nw c ne ne se 8-15-18e	¶7	1580
Bryan Petroleum Co.'s Cherry 1, se ne se 15-14-16e	¶89	585
E. Price's Green 1, csl sw 20-14-7e	*	1776
H. E. Dowd's Long 1, c nw nw 26-10-19e	*	1250
OKLAHOMA COUNTY—		
Shaffer's Deterding 1, nw ne nw sw 10-11-3w	10½ hr. 6680	6455
OKMULGEE COUNTY—		
Kirkland & Son's Brown 6, c sw sw 9-15-13e	5	2488
PITTSBURG COUNTY—		
J. E. Weible's Belt 1, ne c nw nw se 5-8-16e	¶1	368
PONTOTOC COUNTY—		
Stanolind O&G's Roberts 2, ne sw ne 32-5-5e	265	2394
SEMINOLE COUNTY—		
Magnolia Pet. Co.'s Billington 3, sw se nw 29-6-6e	260	2750
WAGONER COUNTY—		
C. D. Bradley's Kernal 1, nw sw ne 7-15-17e	¶8¼	1013

For Tabulation and Comparison See Market Section

EASTERN STATES

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
BUTLER COUNTY—		
Morrow, Dunlap & Co.'s Johnson 1	¶1	....
GREENE COUNTY—		
George Drake & Co.'s Platt 1	¶¼	2800
Carnegie Natural Gas Co.'s Jacobs 1	¶¼	3199
SOMERSET COUNTY—		
American Natural Gas Co.'s Maust 1	*	2980
WAYNE-TIOGA FIELD—		
Belmont Quadrangle Interests' Unknown 1	¶3	1726
Reserve Oil & Gas Co.'s Bliss 1	¶3	....

WEST VIRGINIA

CALHOUN COUNTY—		
W. H. Bickel's Gainer 1	*	....
Park Bowser & Co.'s Wilson 2	¶½	....
GILMER COUNTY—		
McCall & Co.'s Trout 2	*	2585
KANAWHA COUNTY—		
G. L. Cabot's Tomkins 5	¶¼	2439
WYOMING COUNTY—		
Ritter Lumber Co.'s Fee 2	¶¼	4328
WETZEL COUNTY—		
Lonnie Oil & Gas Co.'s Hunt 1	¶¼	3199

SOUTHEASTERN OHIO

NOBLE COUNTY—		
Charles Knott & Co.'s Archibold 1	*	918
WASHINGTON COUNTY—		
Zwingle Bros' Edwards 7	5	1536

CENTRAL OHIO

ASHTABULA COUNTY—		
Schaeffer Bros' Layman 1	¶¼	....
ASHLAND COUNTY—		
Ohio Fuel Gas Co.'s Barnhill 2	*	....
LORAIN COUNTY—		
McMillan & Co.'s Klooz 1	¶½	2743
MUSKINGUM COUNTY—		
W. H. Atham's Atha 4	¶¼	3762
Ohio Fuel Gas Co.'s Myers 1	15	3932
MEDINA COUNTY—		
Edson Sons Co.'s Packard 16	20	388
Commonwealth Gas Corp.'s Fenstermaker 1	*	2855
PERRY COUNTY—		
Hopewell Gas Co.'s Sweeney-Koehler 1	¶2¼	3100
STARK COUNTY—		
Brendall & Co.'s Lake Cable Co. 3	¶2½	4402
Medford Oil & Gas Co.'s Price 1	¶1	4450
Ohio Fuel Gas Co.'s G. Stockert 1	¶3	....

MICHIGAN

ISABELLA COUNTY—		
Godd-Goll Interests' Mumy 3	20	....
Pure Oil Co.'s Willie 3	¶2¾	1403
WAYNE COUNTY—		
G. L. LeVeque's Seger 1	¶¼	113

KENTUCKY

DAVIESS COUNTY—		
Frank Cox & Co.'s Gretcher 1	*	1188
ESTILL COUNTY—		
Cox & Gabbard's Evans 6	8	....
HENDERSON COUNTY—		
Imperial Oil Prospecting Co.'s Dr. Clay 1	*	....
Mecca Oil Co.'s King 2	25	....
OHIO COUNTY—		
B. B. & M. Oil Co.'s Coleman 1	*	628

SOUTH LOUISIANA

TERREBONNE PARISH—		
The Texas Co., Lake Barre 6	2100	3810
LA FOURCHE PARISH—		
The Texas Co., Leesville 2	1360	3680

CENTRAL EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
JOINER FIELD—		
Jim Clound, Inc., et al, Stone 1	6000	3685
Gulf Prod. Co., M. L. Murphy (79.6-ac) 3	3000	3787
Humble O&R Co., Geo. Alexander (100-ac) 1	150	3798
A. D. Blackwell 6	5500	3646
Eula McDavid (88.6-ac) 1	150	3781
J. H. Silvey (65-ac) 3	6000	3688
C. J. Thompson (116-ac) 7	5000	3705
J. H. Wooley (200-ac) 6	8400	3692
H. L. Hunt et al, H. C. Maxwell (83½-ac) 3	9000	3780
H. H. LeMaster et al, T. O. Wright (8-ac) 1	10,000	3720
Mitchell et al, W. H. Frederick (35-ac) 1	400	3709
W. H. "Bill Rowe" et al, Deason 1	2500	3691
Sinclair O&G Co., W. D. Kinney 4	6000	3658
KILGORE FIELD—		
Atlantic Oil Prod. Co.-Byrd & Frost, Inc., Andrews 3-A	7000	3615
Brown-Wilson et al, M. R. Terrell 2	7000	3648
Aaron Cohen et al, Negro Church 1	4500	3544
Empire Gas & Fuel Co., Muckleroy 2	12,000	3560
Galvez Pet. Corp., M. T. Cole 1	8500	3560
Gulf Prod. Co., H. C. Alexander 2	7000	3569
Humble O&R Co., L. D. Crim 40	9000	3624
J. A. Knowles 4	10,000	3612
B. F. Laird 4-A	8300	3598
Mary Minor (123½-ac) 1	6000	3750
D. Thomas (172-ac) 4	7500	3611
J. Wooley (124-ac) 1	8000	3680
Magnolia Pet. Co., L. A. Griffin (44½-ac) 2	8600	3563
W. P. Moore 6	10,000	3683
Mullendore-Berry et al, W. W. Elder (20.43-ac) 2	8000	3598
Geo. L. Pace et al, Trip Elder (3½-ac) 1	3000	3560
Penn Oil Co.-Lu-El Oil Co., W. P. Brightwell 1	8000	3650
Petroleum Finance Corp., W. D. Lucy (86-ac) 2	8000	3578
Roberts & Walton, C. E. Christian 1	9000	3658
Rose Oil Corp. (Rosenfield), J. A. Knowles 1	*	3565
Searight-Hart & Shell Pet. Corp., Blackman (100-ac) 1	7000	3691
Shell Pet. Corp., W. P. Moore 2	9000	3707
W. P. Moore 3	9500	3709
Sinclair O&G Co., Major Kennedy (16.3-ac) 1	300	3769
Stanolind O&G Co., J. R. Beall (83-ac) 3	5000	3665
Jas. A. Swindler & Friedman, Mayfield (123-ac) 1	9000	3670
The Texas Co., H. T. Elder (86-ac) 3	7500	3666
LONGVIEW FIELD—		
Barkley & Meadows et al, J. B. Webb (31-ac) 1	12,000	3719
Tom J. Cannon et al, E. E. Rogers (2-ac) 1	12,000	3610
Dillard Oil Co., W. E. Jones (60-ac) 2	6500	3652
Dr. J. W. Falvey et al, Fee (58-ac) 1	15,000	3692
Gulf Prod. Co., Bozeman 3	8400	3629
Nealy et al, 2	11,000	3531
Humble O&R Co., J. F. Boles (100-ac) 1	7000	3567
E. Edwards (70-ac) 1	9000	3631
J. K. Edwards (200-ac) 5	6500	3644
A. L. Hughes 2	8500	3620
W. R. Hughes 1	7800	3700
A. O. Phillips (51-ac) 2	5000	3682
Magnolia Pet. Co., E. H. Brawley 1	12,000	3488
Mudge Oil Co., J. W. Free (113-ac) 2	7500	3708

(Continued on page 71)

Permits Granted for New Wells

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CALIFORNIA

DOMINGUEZ—Union Oil Co., Callender 26, 33-3-13; Callender 27, 33-3-13; Hellman 16, 33-3-13.

ELWOOD—Barnsdall Oil Co., Luton-Bell 19, 15-4-29.

KERN RIVER—C. C. M. O. Co., No. 38, 23-28-27.

LOS ANGELES COUNTY—Simi Oil Co., No. 1, 18-1-17.

ORANGE COUNTY—Pullen Bros. Co., No. 1, 19-5-11.

TORRANCE — Westwood Oil Prod. Co., Ltd., No. 2, 6-4-14.

KINGS COUNTY — Franz A. Gansneder, Tomer, 2-22-18.

OKLAHOMA

OKLAHOMA COUNTY — Ocate Oil Co.'s Smith 1, c e½ ne ne nw 15-11-3w.

PITTSBURG COUNTY—Utilities Producing Co.'s Bascom 5, sw c se sw 10-7-18e.

STEPHENS COUNTY—Geo. L. Pace et al's Toney "B" 1, nw c 27-2s-7w.

KANSAS

BUTLER COUNTY — Magnolia Pet. Co.'s Koogler 67, nw se ne 30-26-5e.

ELLSWORTH COUNTY — Hinkle & Palmer's Phelan 1, se c 2-17-10w; Derby Oil Co. et al's Stottenberg 1, se sw nw 22-16-10w.

GREENWOOD COUNTY—Phillips Pet. Co. et al's Beal 8, ne se ne 28-23-11e.

HASKELL COUNTY—Trees et al's Warner 1, c se 29-30-34w.

McPHERSON COUNTY—Lario O&G and Shell's Boal 1, (owd) se c nw 24-19-2w.

RICE COUNTY—Mid-Field O&R's Brown 1, nw c 10-21-6w; Slick, Pryor and Lockhart's Schurr 3, nw ne sw 21-20-10w.

SEDGWICK COUNTY — Continental Oil Co.'s Nagel 1 (owd) se ne nw 19-27-2e.

TEXAS

BAYLOR COUNTY—C. G. Hart, Megargel, J. E. Branson, 80, 1, J. W. Hassell sur, 150 ft from s and e lines of Blk 7.

BROWN COUNTY — H. W. Peck et al, Brownwood, J. S. Richardson, 60, 1, J. Maples sur, 150 ft from e and 200 ft from s line.

BURLESON COUNTY — Adolph Marek, Caldwell, Fee, 153, 1, N. A. McFadden sur, 225 ft w of center of e line.

COCHRAN COUNTY—Penn Oil Co., Dallas, E. R. Slaughter, 150, 1, B 129, CCSL sur, center of Blk 80.

CHAMBERS COUNTY — Mills Bennett Prod. Co., Houston, J. F. Wilburn, 10, 5, H. Griffith sur, 350 ft w of No. 4. D. B. McDaniel, Houston, Wilburn, 10, 4, H. Griffith sur, 250 ft nw of No. 3.

COLEMAN COUNTY—Centennial Oil & Gas Co., Dallas, N. D. Newton, 300, 5, S 1, B 519, San Augustine sur, 280 ft from e and 575 ft from s line. Jamison, Pollard & Forster, Coleman, W. H. Kingsbury, 340, 3, B 495, J. H. Cleveland sur, 1365 ft from n and 1800 ft from w line.

DUVAL COUNTY — Corrected location. Camp & Southern Crude Oil Pur. Co., San Antonio, M. C. Hubbard, 640, 2, S 73, BS&F sur, 990 ft from w and 330 ft from n li of sec.

FISHER COUNTY — Texas Co., Wichita Falls, G. A. Daniels, 320, 1, S 194, B 1, BBB& C sur, 330 ft from w and 359 ft from s li sec.

FORT BEND COUNTY—Cullen & West Prod. Co., Houston, Lockwood, 220, 2, J. Rabb sur, 922 ft from w and 390 ft from n line; Lockwood, B, 128, 1, J. Rabb sur, ne corner.

GREGG COUNTY—Stanolind O. & G. Co., Longview, W. F. Wilhite, 29, 3, G. W. Hooper sur, 330 ft from n and 200 ft from e line. Texas Co., Shreveport, La., R. B. Walls, 104, 1, M. Tenison sur, 200 ft from n and 228 ft from e line. Selby Oil & Gas Co., Tulsa, Okla., H. R. Snavely, 118, 2, J. R. Crosby sur, 300 ft from n and 200 ft from w line. Big State Pet. Co., Dallas, Red Bird, 2, 1, M. Dillard sur, 150 ft from n and e lines. Texas Co., Shreveport, La., E. M. Woods, 90, 2, M. Dillard sur, 800 ft from n and 400 ft from e line. C. G. Glasscock, Longview, T. M. Collins, ¾, 1, G. W. Hooper sur, 90 ft from n and e lines. Tidal Oil Co., Fort Worth, E. W. Nettleton, 200, 4, Jno. Ruddle sur, 49 ft from n and 300 ft from e line. Leonard Pet. Co., Blackstone Hotel, Tyler, Texas, H. G. Corbin, 20, 2, H. Edwards sur, 330 ft from n and 144 ft from e line; 1, 144 ft from e and 330 ft from s line. Trico Oil Co., Dallas, J. W. Free, 3, 1, G. W. Hooper sur. Shell Pet. Corp., Dallas, J. Douglas, B, 138, 2, W. P. Chisum sur, 150 ft from n and 190 ft from e line; J. S. King, 54, 2, W. P. Chisum sur, 340 ft e of No. 1; W. D. Lacy, 164, 1, E. H. Grisham sur, 577 ft from e and 685 ft from s line; G. W. Richey, 61, 3, Wm. Carleton sur, 1065 ft from e and 290 ft from s line; J. B. Watson, 100, 12, J. S. Caruthers sur, 250 ft from n and 150 ft from e line. H. H. Coffield, Rockdale, White Oak Sch. 3, 1, G. W. Hooper sur, 105 ft from n and 315 ft from w line. Wells & Gann Drilling Co., Tyler, G. Johnson, 4, 1, M. Van Winkle sur, 150 ft from w and 50 ft from n line. B. F. Carroll, Corsicana, Masonic Lodge ¾, 1, W. P. Chisum sur, 152 ft from e and 36 ft from n line. Barnsdall Oil Co., Tulsa, Okla., J. G. McGrede, 109, 7, D. Sanchez sur. Sutton & Hawkins, Tyler, J. Whitaker, 26, 2, C. H. Alexander sur, 200 ft from s and e lines; 1, 218 ft from n and 193 ft from e line. A. B. C. D. Oil Synd., Brenham, J. L. McNeely, 16, 2, W. P. Chisum sur, 150 ft from n and w lines. Fain-McGaha Oil Corp., Wichita Falls, R. Corbin, 40, 1, H. Edwards sur, 950 ft from n and 450 ft from w line. Arkansas Fuel Oil Co., Shreveport, La., L. E. Orms, 55, 1, W. H. Castleberry sur, 330 ft from s and w lines; C. C. Clemmens, 31, 1, D. Sanchez sur, 325 ft from e and 200 ft from s line. Magnolia Pet. Co., Dallas, S. Carr, 100, 1, M. McCurry sur, 990 ft from n and w lines; H. Hampton, 169, 6, D. Ferguson sur, 627 ft from w and 330 ft from s line; L. J. Leverett, 171, 2, L. J. Rigsby sur, 1400 ft from n and 450 ft from e line; 3, 150 ft from w and 200 ft from s line; L .A. Griffin, 44, 3, M. Van Winkle sur, 725 ft from n cor and 245 ft from w line. Yount-Lee Oil Co., Beaumont, L. E. Orms, 1, Wm. Castleberry sur, 6050 ft from n and 8500 ft from e li of survey; Adrian-McCreary 1, Wm. Castleberry sur, 10,900 ft from n and 5050 ft from e li of survey; S. G. Smith, A1, Wm. Castleberry sur, 4725 ft from n and 700 ft from e li of survey; F. Jones 1, Wm. Castleberry sur, 650 ft from n and 10,890 ft from e li of survey; J. M. Tuttle, 1, Wm. Castleberry sur, 3400 ft from n and 5540 ft from w li of survey; Geo. E. Fenton, B2, D. Sanchez sur, 950 ft from n and 5540 ft from w li of survey; Geo. E. Fenton, A3, D. Sanchez sur, 1330 ft from n and 4960 ft from w li of survey; J. G. McGrede, 1, Wm. Robinson sur, 2050 ft from n and 850 ft from w li of survey; J. Snoddy, 1, Wm. Robinson sur, 5225 ft from n and 300 ft from w line of survey; H. Stephens, 2, Wm. Castleberry sur, 12,350 ft from e and 4050 ft from n li of survey. Corrected location. M. Jones, 3, Wm. Castleberry sur, 600 ft from n and 2675 ft from e line of survey; 4, 1200 ft from n and 2675 ft from e li of survey; P. Hopkins, 2, Wm. Castleberry sur, 3500 ft from n and 5000 ft from e li of survey; J. C. McKinley, B, B5, D. Sanchez sur, 2400 ft from s and 2775 ft from w li of survey; Stuckey, 3, G. W. Hooper sur, 4750 ft from e and 150 ft from n line of sur; Corrected lcn; I. Denson, 3, D. Sanchez sur, 7150 ft from s and 6800 ft from w lie of survey; V. Colvin, 1, H. Hathaway sur, 1200 ft from n and 1450 ft from e li of survey; J. C. McKinley, C, 2, G. W. Hooper sur, 2750 ft from s and 985 ft from e li of survey; M. McKinley, 1, Wm. Robinson sur, 2850 ft from n and 295 ft from w li of survey; A. Castleberry, 1, Wm. Robinson sur, 150 ft from n and 9020 ft from w line of survey; J. Flemister, 2, G. W. Hooper sur, 4350 ft from s and 8275 ft from e line of survey. Humble Oil & Refg. Co., Houston, L. Christian, 59, 2, G. W. Hooper sur, 330 ft from n and 733 ft from e line; T. B. Harris, 175, 2, W. H. Castleberry sur, 778 ft from n and 770 ft from w line; J. A. Knowles, 100, 6, M. Van Winkle sur, 200 ft from nw and 1300 ft from s line; J. F. Bowles, 100, 2, D. Ferguson sur, 156 ft from e and 175 ft from s line; W. W. Holland, 245, 4, T. Allen sur. Houston Oil Co., Houston, E. W. Clements, 50, 2, C. Rhodes sur, ne corner. Gulf Prod. Co., Houston, G. Davis, 50, 1, W. P. Chisum sur, 200 ft from s and e lines; I. Anderson, 15, 1, Jno. Ruddle sur, 150 ft from s and w lines. Sun Oil Co., Dallas, J. W. Akin, 2, 3, Thompson & Painter sur, 330 ft from n and 67 ft from w line; A. Tooke, A, 50, 1, Wm. Castleberry sur, 335 ft from w and 250 ft from s line; J. S. Elder, 75, 1, Jno. Wilkinson sur, 300 ft from s and e lines; C. Loyd, 133 6, W. P. Chisum sur, 595 ft nw of No. 2. Superior Oil Co., Dallas, H. Pritchard, A, 100, F. W. Johnson sur, 2187 ft from n and 330 ft from w line. J. A. Lester et al, Fort Worth, J. C. McKinley, 9, 1, G. W. Hooper sur, north corner. A. C. & L. W. Fritz, Wichita Falls, Anderson, 13, 1, G. W. Hooper sur, 162 ft from e and 150 ft from s line. G. C. Graity, Fort Worth, J. I. Morgan, 2, 1, B 4, M. Dillard sur, 150 ft from e and 272 ft from s line.

GALVESTON COUNTY — Yount-Lee Oil Co., Beaumont, Cade, 22, N. Fitzsimmons sur, 740 ft from e and 1370 ft from n li of survey.

GRAYSON COUNTY—F. H. E. & Fleming & Kimbell, Fort Worth, W. E. Nichols, 160, 1, I. Southward sur, 660 ft from w and 200 ft from s line.

GRAY COUNTY—R. R. Sherwood, Amarillo, J. S. Morse, 160, 1, S 15, B A9, H&GN sur, 900 ft from s and w lines of nw¼.

HOPKINS COUNTY — Harmony Oil Co., Dallas, J. L. Taylor, 88, 1, Jno. Polk sur, 262 ft from n and 323 ft from w line.

IRION COUNTY—P. I. Fox, Mertzon, H. Horney, 40, 2, S 2, B 3, H&TC sur, 820 ft from n and 150 ft from w li of section.

LEON COUNTY—H. M. Ogg et al, Buffalo, H. Pearlstone, 160, 1, L. R. Moody sur, 210 ft from nw and 260 ft from ne line.

MILAM COUNTY—Dil Tex Oil Corp., Dallas, W. D. Dilbeck, 45, 1, Rodriques sur.

MORRIS COUNTY—Fulwood & Buchanan, Cason, Staggers, 65, 1, Forbes & Nelson sur, 450 ft from n and 150 ft from e line.

MONTGOMERY COUNTY—G. W. Strake et al, Houston, South Texas Dev., 1476, 1, Theo. Slade sur, 800 ft s of n line of survey. Humble Oil & Ref. Co., Houston, W. A. Renn, 286, 1, S. J. McFarland sur, 750 ft from n and e lines.

PECOS COUNTY—A. M. Barnes, Imperial, C. Devlin, 1280, 2, S 1, L. Smith sur, 2382 ft from n and 915 ft from e line; 1, 2033 ft from n and 425 ft from e line.

RUSK COUNTY—Kirby Pet. Co., Dallas, R. P. Grambling, 27, 1, T. J. Martin sur, 250 ft from n and w lines. Shell Pet. Corp., Dallas, R. Russell, 126, 7, R. W. Smith sur, 321 ft from w and 330 ft from s line; W. F. Neal, 30½, 1, J. Lindley sur, 330 ft from n and e lines. Humble Oil & Ref. Co., Houston, S. S. Laird, B, 127, 12, M. Van Winkle sur, 1613 ft from n and 250 ft from w line; J. R. Elliott, 13, 1, T. J. Martin sur, 250 ft from n and 325 ft from w line; J. R. Box, 125, 2, T. J. Martin sur, 250 ft from n and 325 ft from e line; J. N. Peterson, 63, 13, I. Ruddle sur, 200 ft from n and w lines; M. Thompson, 126, 1, I. Moore sur, ne corner; J. E. Wheelis, 164, 5, F. Cordova sur, 200 ft from w and 1150 ft from s line; O. R. Holt, 60, 1, S. P. Hollingsworth sur, 190 ft from n and 250 ft from e line; J. E. Sexton, B. 50, — T. J. Martin sur, 330 ft from n and 300 ft from e line; A. D. Blackwell, 82, 8, F. Cordova sur, 150 ft from n and w lines; L. D. Crim, 564, 46, E. G. Sevier sur,

For Tabulation and Comparison See Market Section

3679 ft from e and 150 ft from s line; O. Blackwell, 74, 4, F. Cordova sur, 150 ft from s and w lines; S. S. Laird, B, 127, 11, M. Van Winkle sur, 904 ft from n and 250 ft from w line. Tidal Oil Co., Fort Worth, W. P. Moore sur, 135, 3, H. Wiggins sur, 430 ft from w and 1350 ft from s line; 4, 330 ft from w and 2250 ft from s line; M. Thompson, 79, 3, Jno. Darley sur, 282 ft from e and 1380 ft from s line. R. M. V. Oil Co., Henderson, J. A. Birdwell, 37, 2, M. J. Pru sur, 300 ft from s and e lines. Stanolind Oil & Gas Co., Longview, M. O'Quinn, 98, 5, Geo. Berry sur, 330 ft from n and 1057 ft from w line; 6, 330 ft from n and w lines. Cranfill & Reynolds, Houston, V. Barton, 10, 1, T. J. Martin sur, 559 ft from e and 194 ft from s line. Texas Co., Shreveport, La., J. D. Stone, 50, 3, M. J. Pru sur, 250 ft from w and 150 ft from s line, Corrected location. Kirby Petroleum Co., Houston, R. P. Grambling, 27, 1, T. J. Martin sur, 300 ft from n and w lines. Devonian Oil Co. and Gulf Production Co., Tulsa, Okla, R. A. Motley, 423, 5, Wm. Killen sur, 450 ft from n and 330 ft from e line. Willard Oil Co., Henderson, Jno. Alford, 21, 1, T. J. Moore sur, 197 ft from n and 157 ft from w line. Wheelock & Collins, Box 918, Cisco, D. Wills, 220, 1, H. Hobson sur, 173 ft from n and 212 ft from w line. Magnolia Petroleum Co., Dallas, D. Crim, 50, 8, R. Winn sur, 300 ft w of No. 1; D. Wells, 100, 5, H. Hobson sur, 300 ft n of No. 2; C. Still, 105, 5, M. McCabe sur, 330 ft from w and 300 ft from s line; W. P. Moore, 152, 7, J. Ellington sur, 1443 ft from e and 370 ft from s line; W. P. Moore, 152, 8, J. Ellington sur, 1443 ft w of center of e line. Mid-Kansas Oil & Gas Co., Shreveport, La., M. L. Thompson, 95, 2, I. Moore sur, 565 ft from n and 900 ft from e line; C. L. Graham, 134, 1, J. B. Cadena sur, 675 ft n and 1200 ft from w line; C. L. Graham, 134, 2, J. B. Cadena sur, 1200 ft from w and 660 ft from s line. R. D. Gordon, Dan Waggner Bldg., Fort Worth, M. L. Thompson, 7, 1, F. Cordova sur, 340 ft n and 370 ft from e line. H. L. Hunt, Box 938, Tyler, R. W. Fair, C 211, 1, M. J. Pru sur, 250 ft from w and 610 ft from s line; S. A. Plowman, 40, 3, F. Cordova sur, 330 ft from n and w lines. East Texas Refining Co., Dallas, D. W. O'Quinn, 17, 1, Geo. Barry sur, 298 ft from w and 306 ft from s line.

SMITH COUNTY—Magnolia Petroleum Co., Dalas, J. R. Wright, 70, 8, J. Vargas sur, 778 ft from e and 700 ft from s line. H. L. Hunt, Box 938, Tyler, R. W. Fair, 130, 6, McAnulty sur, 180 ft from n and 330 ft from e line. Nash & Strickland, Henderson, T. O. Wright, 6, 1, B 8, J. Vargas sur, 292 ft from n and 250 ft from w line. Sun Oil Co., Dallas, O. W. Knight, 264, 3, D. Collins sur, 355 ft from w and 330 ft from n line.

SHELBY COUNTY—R. F. Smith, Holmes Bldg., Fort Worth, O. H. Pooley, 40, 1, D. Gonzales sur, 200 ft from s and e lines.

UPSHUR COUNTY—Shell Petroleum Corp., Dallas, C. C. Landers, 107, 2, G. W. Hooper sur, 152 ft e and 970 ft from s line; C. C. Landers, 107, 3, G. W. Hooper sur, 150 ft from e and 1335 ft from s line. Conservative Oil Co., Citizen's National Bank Bldg., Tyler, B. Victory, 100, 4, E. A. J. Evans sur, 1000 ft from s and 300 ft from w line. Mudge Oil Co., 317 N Bois d'Arc, Tyler, J. F. Bland, 32, 2, G. W. Hooper sur, 150 ft from e and 172 ft from s line. C. G. Glasscock, Box 342, Longview, T. M. Collins, 1, 1, M. Mann sur, 210 ft from n and 52 ft from e line. W. M. Burress, Box 715, Longview, W. M. Landers, 3, 1, G. W. Hooper sur, north central part of lease. C. T. Stubbie, Electric Bldg., Fort Worth, J. R. Cook, 165, 1, J. Walker sur, 1170 ft from n and 1004 ft from w line. W. B. Letts & Ty-Tex Oil & Development Co., S. F. Kay, 50, 1, H. W. Augustine sur, 215 ft from n and 165 ft from e line. Clark, Cowden & Sikes, Box 174, Duncan, Okla., H. W. Free, 37, 1, D. Ferguson sur. Humble Oil & Refining Co., Houston, J. K. Edwards, 200, 6, D. Ferguson sur, sw corner; A. Carter, 90, 2, D. Ferguson sur, 158 ft from w and 1053 ft from s line.

UPTON COUNTY—Crosby Drilling Co., Box 776, Odessa, J. F. Lane, 40, 1, S 36, B 1, MK&T sur, 1650 ft from w and 2310 ft from s line of sec.

VAN ZANDT COUNTY—Pure Oil Co., Fort Worth, I. D. Miller, 60, 3, J. Walling sur, 806 ft from n and 200 ft from e line.

YOUNG COUNTY—N. K. Shamlin, Wichita Falls, S. B. Waters, 41, 1, 290, TE&L sur, 250 ft from n and 1082 ft from w line. D. M. Knox et al, 830 Plum St., Graham, Manning, 160, 1, 7, TE&L sur, 200 ft from s and w lines. J. W. Junker et al, Olney, J. A. Winkler, 40, 1, S 1, J. Poitevent sur, 150 ft from n and w lines.

ZAPATA COUNTY—McCaldin, Owen & Newton, Laredo, R. Garyer, 93, 1, S 161, B 2, 150 ft from s and w lines. O. W. Killam, Laredo, E. Cuellar, 418, 43B, Sec 277, 350 ft nw of No. 17B; E. Cuellar, 418, 44B, Sec 277, 350 ft n of No. 43B.

LOUISIANA

RICHLAND PARISH — National Gas Co., Philadelphia, Singletary 1, 20-18n-7e, 1980 ft n and 660 ft w of se cor of sec.

SABINE PARISH—Jno. S. Lanier, Shreveport, Barthold 1, 35-8n-12w, 335 ft n and 535 ft e of sw cor se¼ of ne¼. H. W. Perritt, Shreveport, Bowman Hicks 5, 2-7n-12w, 330 ft s and 410 ft e of nw cor sw¼ of sw¼.

TENSAS PARISH—L. A. Duvall et al, Ft. Worth, Martin Jacob 1, 1-14n-11e, 150 ft s and 150 ft w of ne cor of sec.

MOREHOUSE PARISH—Carbons Consolidated, Monroe, Fee 5, 21-20n-4e, 1945 ft n and 3046 ft w of e¼ cor of sec.

RICHLAND PARISH — United Gas Pub. Service, Shreveport, Cummings 3, 24-17n-5e, 3483 ft w and 1320 ft n of se cor of sec; C. H. Pipes 1, 35-17n-6e, 2447 ft s and 178 ft e of nw cor of sw¼.

SABINE PARISH—Loring Oil Co., Pittsburgh, Pa., Bowman-Hicks 18, 15-7n-12w, 1280 ft s and 275 ft e of nw cor of sw¼ of nw¼; Bowman-Hicks 19, 16-7n-12w, 155 ft w and 75 ft s of ne cor sw¼ of ne¼. Pelican Nat. Gas Co., Shreveport, La., La. Long Leaf Lbr. Co. 10, 10-7n-11w, 205 ft s and 188 ft w of nw cor nw¼ of ne¼. The Texas Co., Shreveport, La., L. C. Lattin 1, 3-7n-11w, 1120 ft w and 200 ft n of se cor of sec.

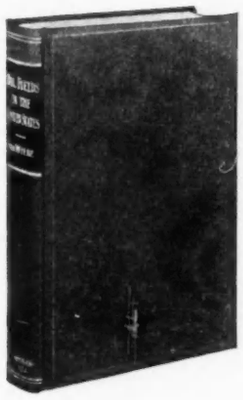
ARKANSAS

UNION COUNTY — Wilson & Chapman, Norman 1, 330 ft n and 330 ft e sw cor se¼ ne¼ Sec 3-18-13.

COMPLETIONS

(Continued from page 69)

Company, Well and Location	Initial Production Bbls.	Depth
Pelican Nat'l Gas Co., (McMahon & McCullough), E. H. Hamilton 1	25	3762
Roeser-Pendleton, Inc., E. C. Evers (27-ac) 1	8500	3719
Stanolind O&G Co.-Simms Oil Co., G. F. Meadows (50-ac) 2	13,000	3725
J. C. Persons (150-ac) 4	7200	3560
Phillips 1	11,000	3687
A. J. Tuttle (95-ac) 1	9000	3530
Stroube & Stroube, Spurrier (30-ac) 1	10,000	3605
Vacuum Oil Co., J. H. Beavers 1	8400	3547
Yount-Lee Oil Co., Ike Denson 3	8500	3655
M. Jones (55-ac) 3	8600	3580
M. Jones (55-ac) 4	8400	3583
J. Stephens (57½-ac) 1	11,000	3545
SOUTH TEXAS		
DUVAL COUNTY— Duval Oil Co.'s Bishop Duval Land &Cattle Co. 3	75	2346
GUADALUPE COUNTY— John F. Camp's Sue Denman 1	8184	2507
KIMBLE COUNTY— C. L. Bryant's Lambert 1	*	850
REFUGIO COUNTY— Pearson Properties' Ryals 3	136	6457
STARR COUNTY— Hooks & Weaver's Kelsey Bass 1	30	465
ZAPATA COUNTY— O. W. Killam's Cuellar 43-B	90	1839



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HOUSTON TEXAS

Wildcat Reports From All Sections

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CENTRAL EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
CASS COUNTY—		
J. L. Nelson et al, S. A. Irwin 1..	*	3738
FRANKLIN COUNTY—		
Harper-Byers Oil Co., A. J. Laws 1	*	3841
RUSK COUNTY—		
Frank Melat-R. W. Giles et al, Newt Orr 1	*	3147
UPSHUR COUNTY—		
Breman & Woods et al, Robertson 1	*	3695
McPhail & Smith (Bradley & Perkins), Kay (80-ac) 1	*	4007
VAN ZANDT COUNTY—		
Harry Helms et al, C. E. Bogue 1	*	3098
C. M. Joiner Pet. Corp., T. B. Meeks-Randall 1	*	4566
Kelly O&G Co., L. Lunsford 1	*	2300
Neil McElroy & Leray, R. W. Murphy (79-ac) 1	*	2700
ANGELINA COUNTY—		
Pollock Oil Co., Sessions 1	*	4000
NACOGDOCHES COUNTY—		
Vitex Combined Oil Group, M. B. Hayter 1	*	3035

EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
HARRISON COUNTY—		
Ryan Cons. Pet. Corp., H. H. Key 1, Elizabeth Carroll sur	*	5818

HARRISON COUNTY—O. H. Parkening's T. J. Taylor 1, Walter H. Payne sur, sd in shale and shells 2530 ft. Ryan Cons. Pet. Corp.'s H. H. Key 1, Elizabeth Carroll sur, 6⅝ cas 5275 ft, sw abn, td 5818 ft (Trinity test); J. M. Furrh 1, T. J. Copelain sur, rig. J. M. Gholson's Bivins 1, T. D. Peterson sur, sd 2759 ft. Olford et al's Bolding 1, W. O. Stanfield sur, sd 2688 ft. Marshall O&G Co.'s J. R. Watson 1, Thos. Iden sur, rig (5000 ft test planned). Lloyd Oil Corp.'s Timmons 1, Jno. Findley sur, 10-inch 240 ft.

MARION COUNTY — Rondeau & Hindman's Lindsey 1, Alex Albright sur, sd 400 ft. J. W. Hamilton's Wood 1, Alex Albright sur, sd 2380 ft. Claunch et al's Laun 1, Henry Fulgram sur, sd 300 ft. Sheldon et al's Brown 1, E. B. Fowler sur, sd 3750 ft.

PANOLA COUNTY—Dillon & Bradham's Baldwin 1, Hampton West sur, sd 1555 ft. United Prod. Corp.'s Steele 17, B. C. Jordan sur, lcn (Trinity test). Werner 11, D. B. Lewis sur, rig (Trinity test). Southwestern O&G Co.'s Vinson 1, C. T. Anderson sur, sd 3873 ft. Daisy O&G Co.'s Rucks Hrs. 1, Jno. Palmer sur, sd for water 3264 ft shale. Moses & Wallace's C. L. Daniels 1, Isabel Hanks sur, sd 650 ft. Hoffer et al's Cameron 1, W. A. Lagrone sur, dk. Davidson et al's Latham 1, Wm. Rich sur, rigging up for deep test, td 550 ft. Nelson et al's Williams 1, Jas. Hanks sur, 12½ cas 400 ft, sd laying water line, td 1500 ft, sticky shale. Stamps et al's Chadwick 1, Wm. Scantleberry sur, rig.

SHELBY COUNTY—Chaparral Oil Co.'s Holt 2, Matthew Moore sur, claim sand core, sd 3127 ft. E. L. Chapman's Pickering Lbr. Co. 1, C. F. Henry sur, blew out est 25 mil ft gas and spray fresh water, killed and set 365 ft 7-inch cas, still making little gas, trying to kill completely, td 3864 ft. McRobie et al's Windham 1, Wm. Leach sur, 296-acre tract, rig. Maulding et al's Frost Lbr. Ind. 1, A. B. Fountain sur, dr 2920 ft. H. H. Gracey's J. A. Morrison 1, Wm. English sur, sd dr water well, td 2600 ft. I. M. Bradley et al's J. J. Asberry 1, G. W. Mitchell sur, sd in sandy lime 3280 ft. T. A. Martin's J. A. Bush 1, Alfred Lindsay sur, dk and mov in rig. Schultz et al's Hughes 1, J. Clay sur, probable base Georgetown 4146 ft, sd 4155 ft. C. H. Tautenhahn's J. C. Bogard 1, Thos. Baker sur, sp, partly rigged up, sd 20 ft. Glidden & Stephenson's Pickering Lbr. Co. 1, Jonas Harrison sur, top PG 3059 ft, top Georgetown lime 3810 ft, sd wo in Georgetown lime 3854 ft. Ridgeway et al's Polley 1, Domingo Gonzales sur, rig. Geo. L. Pace's Powers 1, Jno. Timms sur, dk. T. W. Tennent's Henry 1, Jno. Spradley sur, top PG 2100 ft, dr chalk 3360 ft. K. H. Francis' Jno. Mims 1, Mary Smith sur, 13⅜ cas 40 ft, 10-inch 393 ft, top Midway 847 ft, sr, td 2486 ft, chalk. Smith et al's Carroll 1, J. A. Parker sur, 10-inch 180 ft, sd repr rig, 2750 ft.

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports; *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn — abandoned; bbls—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh — fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd — shut down; sdtr — sidetracking; sp — spudding; sr — straight reaming; td — standardizing; sw—salt water; td—total depth; ur—underreaming; wo — workover; wosr—waiting on standard rig.

SOUTH TEXAS

ATASCOSA COUNTY—Glenn Mathis' Mrs. G. M. Martin 2, Navarro sur, 3 mi s Amphion, 100 ft s No. 1, dr 2510 ft.

BASTROP COUNTY—W. A. Allen's Birmingham 1, James Stewart sur, dr 855 ft. Smith and Burns' Marburger 1, King & Millett sur, sd 570 ft. Texas Dev. Co.'s C. H. Ray 1, Thomas Christian sur, dk.

BEE COUNTY—Alexander et al's McFall 1, 3 mi s Skidmore, dr 1875 ft, no later report. Cosden Oil & Rowan and Moore's Freeland 1, John Pace sur, sd 4299 ft for orders. J. C. Hughes' P. H. Martin et al, John Lyford sur, Simms Pool, mov on mat. J. S. Mauldin's Mauldin 1, G. A. Kerr sur, sd 3930 ft. Mineral Oil Co.'s A. J. Kimball 1, Stephen Winship sur, sand 3546-50 ft, test some oil, now sd. T. B. Slick Estate's Ray 1, G. A. Kerr sur, lcn. United Prod. Co.'s Ray 39, T. Hanson sur, dr 4417.

BEXAR COUNTY—J. E. Anderson's San Antonio Irrigated Farms 1, dk. Witherspoon Oil Co.'s Anoil 1, Rialls sur, spud and sd.

BLANCO COUNTY—Hardy Sitton's Standeford 1, sur 165, dr around 1100 ft at last report; McMillen 1, sur 125, sd 686 ft. Forest Oil Co.'s Hohenberger 1, sur 94, sd 712 ft. Hicks et al's Speck & Wiedner 1, Thomas sur, set 700 ft 12½-inch csg.

CALDWELL COUNTY — Ralph Lewis et al's Keith McGee 1, Pinchback sur, ne rept. Mills and Chapman's McMahon 1, Pinchback sur, plug from 2490 to 2175 ft, shot with 100 quarts, no results, now sd. Joe Bruner's Malone 1, Floyd sur, sd 2507 ft.

COMAL COUNTY—Caldwell and Lanier's T. J. Byler 1, sur No. S-894, set 8¼ at 704 ft to dr ahead.

DE WITT COUNTY—Gibson & Strum's Clark 1, Dolores Aldrete sur, rigged up and sd.

DUVAL COUNTY — John F. Camp and Stanolind O&G Co.'s Hubbard 3, Sec. 73, B. S. & F. sur, spud in. Duval Oil Co.'s Bishop Duval Land Co. 3, sec 135, set 6⅝ inch csg 2310 ft, top sand 2313 ft, td 2346 ft, completed 75 bbls. Humble O&R Co.'s Kohler 50, sur 164, dr 7698 ft. S. J. Carpenter's J. Benavides 1, sec 1, blk 38, Mesquite Grant, sd 1725 ft. L. E. Lockhart's Sutherland 1, sec 511, dr 2150 ft. Frank Garvis' Shallert 1, sur 255, r. u. Coffee et al's Garza 1, sur 49, dr 1795 ft.

FRIO COUNTY—Arthur H. Wray's Roche 1, A. Hutzler sur, near Big Foot, dr 535 ft.

GOLIAD COUNTY — Gibson Oil Co.'s Parks 2, 5 miles n Goliad, prep to make lcn. V. F. Neuhaus & Stanolind O&G Co.'s Pettus 2, n and w of No. 1, lcn.

GUADALUPE COUNTY—John F. Camp's Sue Denman 1, Wm. Arrington sur, completed for initial flow 341 bbls hour, now shut in to 75 bbls hourly, 6⅝ inch csg 2493 ft, top Edwards lime 2495 ft, td 2507 ft. Adams, Lyles, North and Walton's Zobrowoski 1, Clements sur, flowing 8 bbls daily, sd 2212 ft. Harry Bruner's Jim Sherrill 2, Geo. Allen League, sd 190 ft. Linne et al's Linne 1, Cortorio sur, 5 mi s Marion, dr 1502 ft. C. McGarity et al's Wesch 1, sur 1445 ft. S. A. Oil and Royalty Co.'s Dibrell 1, sec 6, lcn. Schleter, Atherton & Armstrong's Ogletree 1, Smith sur, sd 1745 ft.

HAYS COUNTY—J. C. Jones et al's Byler 1, John Ingram sur, sd 925 ft.

JIM HOGG COUNTY—D. C. Dewitt, Gomez 1, sec 12, sd 400 ft. Cole Pet. Co.'s Palacios 1, sd 1360 ft.

KARNES COUNTY—V. F. Neuhaus' I. L. Russell 1, C. Martinez sur, prep to spud.

KENDALL COUNTY—R. M. Perkins (Sartain) Lawhorn 1, Richardson sur, dr 670 ft. Borgett et al's W. Haag 1, W. Avery sur, dr 1229 ft. Dixon Oil Co.'s Behr 1, 3 mi s Sisterdale, Jessie Wilson sur, dr 2713 ft. F. S. Dibble's Ellebracht 1, sd 50 ft. Hardy Sitton's Garvin 1, D. L. Richardson sur, sd 1125 ft.

KERR COUNTY—Evans and Gant's Seiker and Mears 1, sec 1605, sd 4031 ft; Jeff Love 1, sur 1594, sd 4060 ft for 5 3/16-inch csg. made head of oil from around edge of csg at 2500 ft. Evans and Sprinkle's Jeff Love 2, sec 1592, dr 1200 ft. Chester A. Martin's Young 1, A. E. Bruce sur, sd 1175 ft.

KIMBLE COUNTY—C. L. Bryant et al's Lambert 1, Lotta sur, 850 ft, has been sd for months, dropped as temp. abn.

LIVE OAK COUNTY — Coquat et al's Hewitt 1, Adams sur, sd 400 ft.

McMULLEN COUNTY — Brodie, Shearer and Emerich's Shiner 1, sd 2000 ft. A. E. Adam's Martin 1, Kate Martin Nueces ranch, dr 275 ft.

MAVERICK COUNTY—Texas Gas Utilities Co.'s Chittim 8, fsh 4690 ft. Beaucourt's Bandera School Land 1, dr 2185 ft.

MEDINA COUNTY — Frank A. Brown's Fohn 1, Torry sur, prep to spud. Genard Bros.' Crawford 1, Keppler sur, dr 1585 ft, top Taylor 1494 ft. J. H. Hickey's Jungman 1, n end Chicon Lake, sd 565 ft. Sun Flower Oil Co.'s Mofield 1, sur 532, plug 2040 to 1800 ft, swab 5 bbls. Yancey Dev. Co.'s Faesler 1, sur 801, reaming, 1945 ft.

NUECES COUNTY—Gulf Coast Oil Co.'s Harrel 1, sec 311, plug from 5225 to 4562 ft, set csg 4553 ft, wait on cement; Elder 1, set 482 ft sur csg. Neal-Milton & Kepley Prod. Co.'s J. M. Roark 1, spud in. Stanolind O&G Co.'s (formerly Southern Crude Oil Pur. Co.) Chas. E. Stratton 1, sec 12, Stratton sub, Anchow sur, topped sand 4746 ft, dr to 4752 ft, drill stem test show 200 lbs. five min, casing set, wait on cement. Saxet O&G Co.'s McCampbell 1, dk.

REAL COUNTY — Evans and Sprinkle's Haby 1, sec 175, waiting on cement at 2500 ft.

REFUGIO COUNTY — Blanco Creek Oil Co.'s Damman 1, Bonnie View Ranch, dr 4645 ft. Humble O&R Co.'s O'Conner 1, Keathing sur, test 800 lbs. in 3 min. on 3/8 choke, sand 2300-09 ft, then test little oil and gas at 2329-49 ft, dr ahead.

SAN PATRICIO COUNTY—Jacob, Buzzini & Pickett's Baldwin 2, Amarro sur, dr 2970 ft. Welder Oil Co.'s Welder 2, test gasser at 3660 ft, now sd to clear up leases.

STARR COUNTY — Hooks and Weaver's Kelsey Bass 1, sub of Porcion 75-76-77, completed 465 ft, 30 bbls initial on pump; Kelsey-Bass 2, lcn.

TRAVIS COUNTY — Fritz Fuch's Ballerstadt 1, Alexander sur, sd abt 1200 ft; Smith 1, Bimbor sur, lcn.

VICTORIA COUNTY—Houston Oil Co.'s Konrad 1, T&NO sur, set 8¼ csg at 4750 ft, td 5003 ft. The Texas Co.'s McFadden 3, John M. Rine sur, dr 3850 ft. United Prod.

Co.'s McFadden 5-A, A. L. Mann sur, dr 2268 ft in hard sand.

WEBB COUNTY—South Texas Prod. Co.'s (United) Bruni 1-B, sur 127, dr 875 ft. Eugene Garner's Billings 1, sur 71, dk. Cole Pet. Co.'s Benavides 2, sur 1601, dr 3220 ft. Geo. S. Marshall's Benavides 1, sur 683, lcn. Southern Gas Utilities Co. & E. A. Sterling & Co.'s (Henne, Wirch & Killam) De la Garza 1, Blk. 12, sur 536, set csg 2560 ft, sand 2560-70 ft, show gas.

WILLIAMSON COUNTY — Citizens Oil Dev. Co.'s Forwood 2, A. Fischer sur, dr 1360 ft. Hays and Gee's Johnson 1, Low sur, dr 1212 ft. H. Fritz et al's Fee 1, HT&B sur, dr 895 ft. Wilson et al's Speckels 1, Jourdan sur, r. u.

WILSON COUNTY—A. Blume's Nickelson 1, C. Diaz sur, dr 1340 ft.

ZAPATA COUNTY—W. T. Henry's Adams 1, (Gopher Trust Estate), sur 4, to re-dr 1375 ft. O. W. Killam's Bruni 1, Borrego Grant, dr 798 ft; Cuellar 43-B, sur 277, completed 90 bbls, td 1839 ft. McCaldin, Owen and Newton's Garza 1, blk 2, Share 2, sur 161, core sand 1837-47 ft, show oil and sw. National Oil Co. of Texas' Luther et al 1, blk 97, Porcion 6, sd 610 ft. Nielson & Coursey's Adams (Luther et al) to deepen from 1320 ft. Penny Prod. Co.'s Cuellar 1, blk 1, sur 2, sd 2055 ft. Pray & Chamberlain's (Whicker) Garza 4, Los Comitas Grant, lcn. H. L. Sargent et al's Gutumez 1, blk 5, Porcion 10, to spud. T. H. Ward's Uribe 1, Borrego Grant, ru and sd.

SOUTHERN CALIFORNIA

ALHAMBRA — Yellowstone Oil Corp.'s Huntington 1, 24-1-13, re-dr 2805 ft; Construccio 1, 24-1-13, plugged to 1635 ft, td 2015 ft.

CALABASAS—L. W. Rucker's No. 1, 26-1-17, co 400 ft. Simi Oil Co.'s No. 1, 18-1-17, rigging up rotary, new lcn.

FULLERTON — Standard's Bastanchury 1, 21-3-10, flowing oil by heads, plugged to 7175 ft, td 8144 ft.

HERMOSA BEACH—Baxter Pet. Corp.'s No. 1, 6-4-14, lcn. Westwood Oil Producers' No. 2, 6-4-14, dr shale 2070 ft.

LYNWOOD—Wiliam L. Jones' Graham 1, 31-2-12, rigging up rotary.

MANHATTAN BEACH—Staple Oil Co.'s No. 1, 24-3-15, sd 2650 ft.

NEWPORT—Ajax Pet. Co.'s B. G. 1, co to deepen from 4890 ft. Nuoil Co.'s Gessell 2, 29-6-10, bailing for pump test, td 1835 ft. Standard's Irvine 1, 26-6-10, dr shale 5595 ft.

OLINDA—Graham-Loftus Oil Co.'s No. 1, 18-3-9, sd 9241 ft.

ROSEMEAD—Rancho Oil Corp.'s Hammond 1, 30-1-11, 6⅝inch cas cmt 5830 ft, td 5974 ft, will drill out.

SAN FERNANDO—E. Caballero Estates' No. 1, 25-1-16, dr shale 1215 ft.

SAN PEDRO—Pedro Pet. Corp.'s No. 1, 15-4-14, rigging up boilers.

SUNSET BEACH—Pullen Brothers' No. 1, 19-5-11, lcn.

WILMINGTON — York-Smullin Oil Co.'s Watson 1, 29-4-13, fsh for drill collar, td 4744 ft, testing various levels.

NORTHERN CALIFORNIA

KERN COUNTY

BELRIDGE—All wells in this field have been transferred to proven field report, following full recognition of deep producing zone.

BUTTONWILLOW — Graham-Loftus Oil Co.'s Carmel 1, 20-27-22, rigging rotary, new lcn. Milham Exploration Co.'s Page 1, 6-28-23, fsh for liner 2745 ft. Wilshire Oil Co.'s Salisbury 1, 7-29-24, sd 6990 ft.

CARRIZO PLAINS—Trav-El Oil Co.'s No. 1, 7-32-22, dr hard sand 2335 ft.

DEVIL'S DEN — Cumberland Oil Co.'s Cumberland 2, 17-26-18, dr hard sand 1700 ft, may make test later.

LOST HILLS—General Pet.'s No. 1301, 13-26-20, dr gray sand 4100 ft. Lincoln Pet. Co.'s Theta 1, 12-26-20, dr shale 4707 ft. Universal Consolidated Oil Co.'s No. 17D, 30-26-21, lcn.

McKITTRICK — California Oil Producers' No. 2, 30-30-22, dr shale 5350 ft. T. H. Purman's No. 1, 22-29-21, rig. K. C. Wallace's No. 1, 32-29-31, dr out cmt for test, td 4212 ft.

TEMBLOR HILLS — Kent & McDonald's No. 1, 3-32-22, dr shale 1920 ft.

WEED PATCH—Shell's Porter-Day 1, 29-30-29, pumping oil, td 8419 ft, plugged to 5790 ft.

SANTA BARBARA COUNTY

COAL OIL POINT—Bolsa Chica Oil Corp.'s Augur 191-1, 24-4-9, dr sand 5365 ft.

GOLETA — General Pet.'s More 3, coring shale 6565 ft. Ohio's Oakley 1, 16-4-28, dr sandy shale 2140 ft.

LOS ALAMOS—N. S. Wilson's No. 1, 2-7-35, pulled cas, wil rig rotary and deepen from 3450 ft.

ORELLA — General Pet.'s Erburo 10, co above plug at 2965 ft, td 3112 ft.

SANTA MARIA—Western Gulf's Bradley 1, 5-9-33, dr shale 7138 ft.

VENTURA COUNTY

HOPPER CANYON — Bardeen Pet. Co.'s No. 1, 13-4-19, will deepen from 540 ft failed to shut off water with 13⅜-inch cas.

RINCON — Chansler-Canfield Midway Oil Co.'s Hobson A-2, 23-3-4, plugged to 8072 ft, td 10,030 ft. Continental's Grubb 1, 23-3-4, testing water shutoff, td 6117 ft.

SOUTH MOUNTAIN—H. H. Bell's Lemon 1, 22-3-21, dr shale 400 ft.

MISCELLANEOUS

FRESNO COUNTY — Associated's Mitchell 1, 22-21-15, sd 6198 ft, swabbed water on production test. Knudsen & Smith's Avenal 1, 36-23-17, dr hard sand 4315 ft. Kettleman Lakeview Oil Co.'s No. 1A, 20-23-20, dr out cmt 1095 ft.

MENDOCINO COUNTY—Twin State Oil Co.'s Soldani 1, 14-12-17, dr shale 7155 ft.

MONTEREY COUNTY — F. A. Brown's Taylor 1, 15-23-14, repairing rig, td 797 ft. Pacific Inland Oil Co.'s No. 1A, 19-23-15, fsh for core barrel 1360 ft.

SAN LUIS OBISPO COUNTY—A. T. Jergins' No. 1, 6-32-13, making test of 850 ft zone, td 1875 ft. C. J. Schilling's Potter 1, 1-29-12, dr shale 1365 ft. Paso Robles Synd.'s Emerick 1, 34-27-11, rig burned, sd 4027 ft.

TULARE COUNTY—Ducor Drilling Co.'s No. 1, 14-24-27, co 2188 ft. W. A. Campbell's No. 1, 22-22-27, lcn.

LOUISIANA GULF COAST

ACADIA PARISH — Yount-Lee Oil Co.'s H. Latrielle 10, Evangeline Dist., dr sh 6660 ft.

CALCASIEU PARISH — Wilfred Lahay's Jardell 1, 2 mi ne Vinton, dr gbo 3690 ft. Success Oil Co.'s John Hewitt 1, 2 mi ne Edgerly field, ru. Union Sulphur Co.'s Fee 767, temp. abn 3750 ft.

IBERIA PARISH—Jefferson Lake Oil Co.'s Lake Peigneur 11, Jefferson Island, New Iberia, sd in anhy. 870 ft.

IBERVILLE PARISH — Standard Oil Co. of La.'s Myrtle Grove Wilbert 1, Bayou Choctaw, r to set 13⅜ cas, td 830 ft.

LA FOURCHE PARISH—States Prod. Co.'s Dibert-Starck-Brown A-1, set 285 ft 8⅝ cas. Texas Co.'s Leesville 2, comp for 1360 bbls at 3670 ft.

PLAQUEMINE PARISH—Humble Oil & Ref. Co.'s Lake Washington 2, Lake Grande Ecaille Dist., 1345 ft td, caprock top 1330 ft, setting 9⅝ inch cas at 1315 ft.

TERREBONNE PARISH — Texas Co.'s State Bay Junop 2, Bay Junop, 28-21s-14e, driving piling; Lake Barre 6, comp for 2100 bbls 3800 ft td; L. L. E. Bay St. Elaine 1, td 5700 ft, set whipstock 4810 ft; Lake Barre 13, Lake Barre Dist., sdtr old hole, set 40 feet piling at 1200 ft, td 4900 ft.

VERMILION PARISH—Pure Oil Co.'s Alliance Trust Co. 1, Gueydan, td 6250 ft, dr.

KANSAS

MORTON COUNTY—Hydraulic Oil Co., State land 1, nw se, 22-34-43w, sd 3460 ft.

SUMNER COUNTY—Trees Oil Co. & Shell, Springate 1, ne se sw, 6-34-2e, dr 1532 ft.

SUMNER COUNTY—Spencer et al, Porter 1, ne sw 12-33-4w, td 3240 ft, ur 8-inch. Otstot et al, Warlow 2, c se nw se, 22-33-3w, T. chat 4070, SO 4080 ft, wtr 4116 ft, td 4150 ft, fsh tools.

HASKELL COUNTY—Trees Oil Co., Warner 1, c se, 29-30-34w, rig.

FORD COUNTY—Carter et al, Community-Everett 18, c ne, 22-20-21w (6000 ft test) td 5691 ft, cem 8-inch.

SEDGWICK COUNTY — Magnolia, McLaughlin 1, nw c 31-28-1w, dr 3500 ft.

FORD COUNTY—Swain et al, Henthorn 1, c nw, 21-25-24w, 5-inch 4645 ft, td 5105 ft.

STAFFORD COUNTY—Rosenthal, Stano-

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lind & Amerada, Gray 1, c ne, 11-34-13w, sd 2900 ft.

HARVEY COUNTY—Liggett et al, Davis 1, c sw se ne, 7-24-1e, td 520 ft.

FINNEY COUNTY — National Refg. Co., Wells 1, sw c 30-23-30w, rog.

HARVEY COUNTY—J. P. Flanigan, Sheridan 1, c sw, 32-22-1e, td 2780 ft, ur 8-inch.

COFFEY COUNTY—Hegberg et al, Kroft 1, se sw se, 30-22-14e, 10-inch 818 ft, sd 1565 ft.

BARTON COUNTY—McCool et al, Isern 1, c sw se ne, 12-20-11w, dr 1900 ft.

RUSH COUNTY—Dewey & Mitchell, Greenwalt 1, c sw, 17-19-16w, td 3880 ft, hfw, pb 3867 ft, shot 30 qts 3825-40 ft, 2000 ft oih 2 hrs c. o.

BARTON COUNTY—Syndicate Oil, Boertz 1, c nw se ne, 13-18-12w, td 2450 ft, sd.

RICE COUNTY—Allison & Fitzwilliams, Blake 1, ne nw 1-18-10w, td 3319 ft, hfw dry and abn.

CHASE COUNTY—Borden et al, Atkinson 1, nw se, 18-18-7e, machine.

MORRIS COUNTY—Alender et al, Wycoff 1, c sw se 5-17-7e, dr 105 ft. Urschel et al, Bersuch 1, c nw se nw 10-17-7e, ru and sd.

ELLSWORTH COUNTY — Keyes et al, Gregory 1, sw c 23-17-9 west, td 2735 ft, sd for 6-inch.

MORRIS COUNTY—Hankenson et al, Cessnum 1, sw se 24-17-9e, dr 2625 ft.

ELLSWORTH COUNTY — Milton et al, Kaster 1, se ne 6-14-9w, td 3540 ft, sd.

OSAGE COUNTY—Riggs-Smith, Wood 1, c se nw 31-14-15e, 10-inch 1050 ft sd.

RUSSELL COUNTY — Austin Drlg. Co., Rockefeller 1, se c 6-13-12w, 3320-25 ft hfw, td 3374 ft sd.

SALINE COUNTY—Twin Mounds Oil Co., Weis 1, c w½ ne nw, 30-13-4w (owd) td 2710 ft, dr by 8-inch.

DICKINSON COUNTY—Severs et al, Livingood 1, ne sw 13-13-2e, sd 4170 ft.

RUSSELL COUNTY—Gilbreath et al, Bratton 1, c ne, 33-11-13w, pb 3189 ft sd.

LINCOLN COUNTY—Buck et al Schulz 1, c se ne sw 19-11-6w, rog.

GRAHAM COUNTY — Schleimeyer et al, Clark 1, sw ne ne 11-9-25w, 4639-4646 ft, hfw, td 4648 ft sd.

CLAY COUNTY—Nebraska Oil, Tivier 1, sw c 19-8-9e, sd 2700 ft.

SHERIDAN COUNTY — Flo et al, Shoemaker 1, se sw sw, 27-27-26w, td 2600 ft, c. o.

WASHINGTON COUNTY — Sincox, Penwell 1, nw se nw, 16-3-3e, sd 1720 ft.

RAWLINS COUNTY—Danciger et al, Unknown 1, sw c 3-2-35w, 6-inch 2995 ft, sd 3501 ft.

OKLAHOMA

Through error, the ownership of Blocker 1, wildcat, nw aw nw Section 29-8n-19w, Washita County, Oklahoma, was given as Snodgrass et al when it should have been Cooper & Terhune.

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Brothers, Forbes 1, ne c se nw nw, sd 1420 ft.

KAY COUNTY—T 27n, R 2e, Sec. 9, Mummer et al, Sornick, ne c se, hfw 2070-2170 ft, sd 3693 ft.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden et al, Collmer 2, ne c se ne sw, sd 5640 ft.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, J. V. Bailey et al, Acre 1, c sw ne, show gas 5298-5303 ft, sd 5502 ft.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer, White 1, se c nw, fsh tools, 5850 ft.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, Washoma Pet. Co., Phillips 1, c nw sw, td 5120 ft, to abandon.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healey et al, Quier 1, se c sw, sd 3970 ft.

KAY COUNTY—T 28n, R 3e, Sec. 24, Summitt Drlg. Co., Hays 1, nw ne nw, td 3675 ft, pb 3222 ft.

PAWNEE COUNTY—T 23n, R 5e, Sec. 15, Cochran et al, McFadden 1, ne c sw, rig. T 22n, R 5e, Sec. 2, Sherry et al, Milsap 1, se c sw, hfw 3505-50 ft, sd 3552 ft. T 20n, R 5e, Sec. 6, W. A. Rookstool et al, Berry 1, nw ne sw, sd 1951 ft, show gas.

OKFUSKEE COUNTY—T 12n, R 10e, Sec. 3, Shepperd et al, Shepperd 1, se nw sw, sd 3690 ft.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al, McDuff 1, sw nw se, show gas 5856-64 ft, co 5733 ft.

LATIMER COUNTY—T 6n, R 19e, Sec. 16, P. English et al, Weaver 1, c nw se, sd 1542 ft.

OKLAHOMA COUNTY—T 2n, R 4w, Sec. 17, C. F. Cunitt, Trustee, St. Joseph 1, sw c ne sw se, sd 6700 ft.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 19, Bunte et al, Bruner 1, se c nw, rig.

ROGER MILLS COUNTY—T 12n, R 24w, Sec. 23, Ute Oil Co. et al, Williams 1, c sw, sd 5150 ft. T 11n, R 26w, Sec. 4, J. J. Rook and Palmer, Davis 1, c nw ne (owd) sd 3030 ft.

CANADIAN COUNTY—T 10n, R 6 west, Sec. 1, J. V. Bailey et al, Robinson 1, c ne nw, sd 150 ft.

WASHITA COUNTY—T 8n, R 19w, Sec 29, Cooper & Terhune, Blocker 1, nw c, dr 221 ft. T 8n, R 18w, Sec. 21, Burns & Prince, Doel 1, sw c sd 1050 ft.

GREER COUNTY—T 7n, R 22w, Sec. 1 Good & Dowell, Cliffel 1, nw c, sand 1462-1501 ft, sd 1745 ft. T 7n, R 21w, Sec. 23, H. A. French, Murphy 1, sw nw se, sd 1654 ft.

GARVIN COUNTY—T 2n, R 2w, Sec. 24, Malernee, Phillips 1, ne c sw, sd 4800 ft.

COAL COUNTY—T 1n, R 8e, Sec. 35, W. E. McCraw O&G, Stiring 1, ne c se, sd 1765 ft.

ATOKA COUNTY—T 3s, R 10e, Sec. 18, Brookshire et al, Guinn 1, ne c, show gas 360-72 ft, dr 1510 ft.

BRYAN COUNTY—T 7s, R 10e, Sec. 8, Bryan Oil Co., Childs 1, ne se sw, sd 660 ft.

MISSISSIPPI

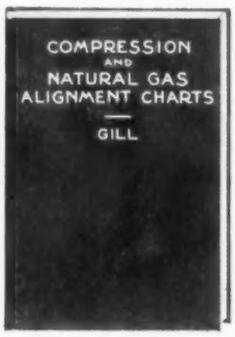
CLAY COUNTY—
Ohio Oil Co., Cantrell 1, 16-15-5e * 4680

JEFFERSON COUNTY—
M. M. Stokes, School Board 1, 14-10n-2w . . . . . * 2302

ADAMS COUNTY—Ark. La. P. L. Co.'s

COMPRESSION
AND
NATURAL GAS ALIGNMENT CHARTS

By THOMAS T. GILL



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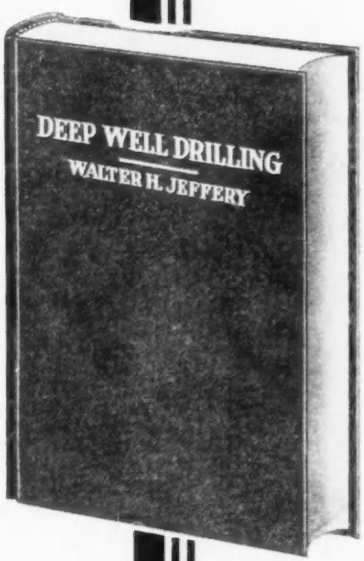

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Brandon Halls Farms, Inc., 1, 32-8n-1w, rigged up and sd.

CLARKE COUNTY (Quitman Dist.)—Gulf Ref. Co.'s Long Bell Lbr. Co. A-1, sw sw 10-2n-16e, 15½ cas 105 ft, setting 10-inch cas 956 ft.

CLAY COUNTY—Ohio Oil Co.'s Cantrell 1, ne ne 16-15-5e, elev 270 ft, set 214 ft 6⅝ in liner at 4485 ft to stop caving, 50,000 ft gas show 4477 ft, sw abn, td 4680 ft in sand.

CHICKASAW COUNTY — Hightower & Golson's Fleming 1, 20-13s-3e, driving 5-inch pipe, td 1585 ft sand.

HUMPHREYS COUNTY—Danciger O&G Co.'s Bellgrade Lbr. Co. 1, nw nw 29-14n-4w, sd wo equipment 80 ft.

JASPER COUNTY (Bay Springs Dist.)—Bay Springs Pet. Inc.'s, J. H. Keyes 1, nw ne 21-2n-10e, sd in Wilcox 2320 ft.

JEFFERSON COUNTY — M. M. Stokes School Board 1, sw sw 14-10n-2w, 12-inch cas 125 ft, top Claiborne (?) 1300 ft, dry abn, td 2302 ft gumbo.

MONROE COUNTY (Amory Dist.)—Amory Dev. Co.'s Bourland 1, 2-15-19, ta in brown sand 3007 ft. P. J. McAlpine's Cowart 1, 2-12s-19w, casing parted at 1500 ft, sd in lime 3404 ft. Associated Royalties' School Board 1, sw se 16-15-17, ta 60 ft.

NEWTON COUNTY (Newton Dist.)—Dalton Dev. Co.'s Majure 1, se se 25-6n-11e, rigged up and sd.

NOXUBEE COUNTY (Macon Dist.)—Thompson O&G Synd.'s Donahue 1, se ne 25-16n-17e, elev 280 ft, 12½ cas 20 ft, 8¼ cas 1541 ft, changing to cable tools; Ames 1, nw nw 24-16-18e, elev 247 ft, mov in rotary rig from Donahue 1.

RANKIN COUNTY (Jackson Dist.)—Gulf Ref. Co.'s Hanna A-1, nw se 23-5-1e, 15½ cas 82 ft, 12½ cas 840 ft, top black shale 2471 ft, top chalk 2562 ft, lost returns, 4-inch drill pipe stuck at 2745 ft, hole bridged around 1200 ft, drilling out bridge around 1415 ft, td 2815 ft chalk. Atkisson & Dyer's Valentour 1, 18-5-2e, arr res at 57 ft and set surf cas.

SCOTT COUNTY—Culley et al's Owen 1, 2-8n-9e, dk.

WARREN COUNTY (Vicksburg Dist.)—Eagle Lake O&G Co.'s Kiger 1, sw ne 9-18n-2e, sd 2607 ft.

WEBSTER COUNTY — P. J. McAlpine's Henley 1, se nw 15-21-11e, cored gravel, sd 1800 ft.

WINSTON COUNTY (Louisville Dist.)—Mess Drilling Co.'s Scarborough 1, nw nw 15-13-14e, dr black shale 3700 ft.

ALABAMA

MADISON COUNTY — Tennessee Valley O&G Co.'s Fee 4, 1-4s-2e, no report.

SUMTER COUNTY (Livingston Dist.)—Forked Lightning O&G Co.'s Nixon 1, 30-20-2w, dk.

WASHINGTON COUNTY—Hobson et al's Wilson 1, 27-7-1w, driving 8-inch pipe, td 925 ft Wilcox. Hobson Bros. 1, 9-8-2w, ta 1450 ft. Oscar Brown's U. S. Land & Cotton 2, 25-3-2w, ta 700 ft.

TENNESSEE

DECATUR COUNTY—Chester County O&G Co.'s Montgomery 1, dr 2426 ft.

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
CADDO PARISH (Rodessa)—		
United Gas Pub. Serv. Co., M. K. Smith 1, 33-23-16	¶3½	5690
NATCHITOCHES PARISH—		
J. W. Cooper et al, Cooper 1, 35-11-10	*	3156

BIENVILLE PARISH — Arcadia Drilling Co.'s Atkins 1, 28-18-6w, sd 1635 ft rock.

BOSSIER PARISH—Andrews & Davlin's Nattin 1, 15-22-14, 4¼ cas 2882 ft, flowing 2 to 5 bbls oil intermittently by heads, wo td 2890 ft. Rambaugh et al's Allison 1, 10-19-13, sd 1100 ft. Flint River O&G Co.'s DeMoss 1, 22-22-13, 6⅝ cas 3028 ft, sd wo after testing dry, td 3089 ft sandy shale. Dr. Hankins et al's Newell 1, 12-19-11, sr, td 1100 ft. D. L. Perkins et al's Ardis 1, 13-15-11, 10-inch 120 ft, top Nacatosh 944 ft, sd wo 1004 ft.

CADDO PARISH—Pelican Nat. Gas Co.'s Cooper 1, 29-18-14, ta in red shale and lime 3648 ft. United Gas Pub. Serv. Co.'s M. K. Smith 1, nw ne 33-23-16, 12½ cas 471 ft, 9⅝ cas 3593 ft, 7-inch 5395 ft, gauged 3,489,000 cu ft gas 2275 pounds rock pressure, td 5690 ft lime. W. P. Wallace, Tr.'s, Cunningham-O'Connor 2, nw nw 15-17-14, elev 236.5 ft, top Nacatosh 976 ft, top Blossom 2036 ft, 6-inch 2036 ft, 10 ft Blossom sand rock, bailed dry, wo, td 2047 ft. Pyramid O&G Co.'s Breard 2, se nw 10-18-16, dr 2450 ft.

CALDWELL PARISH—Monroe Pet. Corp.'s Burton 1, 36-12-2e, sd acct titles, td 2986 ft. Carter Bell et al's Taylor 1, 17-14-4e, 12½ cas 110 ft.

CLAIBORNE PARISH—United Gas Pub. Serv. Co.'s Treadwell & Hawks 1, se nw 6-19-5w, sp dr 1190 ft (upper Trinity test).

DE SOTO PARISH—Rellit O&G Co.'s Cannon Hrs. 1, 12-11-16, top chalk 1475 ft, base 1810 ft, 6-inch cas with packer set 1470 ft, claim 10 ft sand, bailed down 1500 ft, showed gas, well bridged 100 ft below cas may run string 4½ cas, td 1965 ft. W. H. Weichert's Smith 1, 31-14-15, sd 2350 ft. E. T. Oakes' Johnson 1, 3-13-15, co, td chalk 2140 ft. Walters & Nicholson's Jim Guy 1, 3-11-13, sd 1260 ft. S. S. Meek, Tr.'s, Wagner 1, se se 5-12-14, 10-inch 101 ft, top hd chalk 1659 ft, base 2839 ft, sd for fuel 2861 ft sandy lime.

LA SALLE PARISH—Gulf Ref. Co.'s Tremont Lbr. Co. 1, ne sw 10-9-2e, sp 15½ cas 105 ft, dr 288 ft.

NATCHITOCHES PARISH—C. M. Talley et al's Talley 1, 29-11-10, sd 1380 ft. W. M. Coates et al's Collins 1, sw nw ne 28-9-10, ta 4091 ft. J. W. Cooper et al's Cooper 1, 35-11-10, dry abn, td 3156 ft; Cooper 2-A, 35-11-10, sd 1515 ft.

RED RIVER PARISH—Mack Jourdan Co.'s Lockett 1, 33-13-10, dr 2550 ft.

RICHLAND PARISH—National Gas Co.'s Singletary 1, 20-18-7e, dr 2085 ft. Richland Operating Co.'s Baremore 1, 8-inch 870 ft, dr 1850 ft.

RAPIDES PARISH — Pelican Nat. Gas Co.'s Long Bell 1, 3-1n-3w, 12-inch 180 ft, dr 900 ft.

SABINE PARISH—Langbridge Oil Corp.'s Stephens 1, se se 17-9-11, coring 2612 ft. Houston Sabine Prod. Co.'s Sabine 1, sd 2440 ft. J. J. Kean's Belton 1, 31-9-13, 8-inch cas 1590 ft, sd 1610 ft. H. W. Perritt's Bowman-Hicks 5, 2-7-12, dk pat. A. H. Thames' Edwards Est. 1, 8-8-13, sd 1200 ft. R. L. Gay, Tr.'s, Long-Bell A-1, nw nw 10-8-13, tested 4 fourbles light oil, 5 fourbles sw 3585-3628 ft, fsh ds at 3585 ft, td 3628 ft; Bowman-Hicks 10, sw sw 18-7-13, rig. Ohio Oil Co.'s Bowman-Hicks 9, 35-8-12, lcn; Bowman-Hicks 10, 35-8-12, lcn; Bowman-Hicks 11, 2-7-12, lcn. Diffie & Barrett's Lites 1, 34-8-11, 10-inch 105 ft, sd. Hudson & Bird's Walden 1, sw ne 26-8-11, 10-inch 100 ft, sd 1625 ft. Hawkins et al's Moran 1, se ne 1-7-11, 400 ft oil hole, wosr, td 2620 ft. Hawkins & Antoon's Newton 1, 1-7-11, wosr 2610 ft. Lyons & Neely's Duggan 1, 14-7-11, lcn. Texas Co.'s L. C. DeLatin 1, sw se se 3-7-11, rig. W. M. Coates' Bowman-Hicks 1, ne sw 2-7-12, had oil show in Wilcox 1670 ft, top Zwolle marl 2230 ft, top chak 2300 ft, 6-inch 2232 ft, bailed and swabbed in flowing est 10 bbls oil hour, td 2321 ft; Sabine 1, nw nw 1-7-12, lcn; Towery 1, ne se nw 1-7-13, dk. Dengail Oil Co.'s Nulton 1, se nw ne 1-7-13, 10-inch 100 ft, 6-inch 2090 ft, top Zwolle marl 2075 ft, top chalk 2111 ft, flowing through cas est 250 bbls oil day, td 2368 ft. L. K. McGuffin's Byrd 1, 1-7-11, sd 400 ft. Zeke Lohman's McCormick 1, ne sw 2-7-11, sd 1606 ft (corrected depth). Ben Merritt, Tr.'s, Byrd 2, 1-7-11, 10-inch 88 ft. Roy Baker's Sabine 1, 11-7-12, wosr, td 2548 ft. Gautier et al's Meshell 1, 30-8-12, sd 2500 ft. Lanier & Dyer's Barthold 1, (formerly Newton 1), se ne 35-8-12, sp 10-inch 100 ft, ds stuck, shot it in two 2 fourbles off bottom, fsh for 2 joints, td 1500 ft. Loring Oil Co.'s Bowman-Hicks 18, sw nw 15-7-12, dk; Bowman-Hicks 19, sw ne 16-7-12, lcn. Pelican Nat. Gas Co.'s La. Long Leaf 10, nw ne 10-7-11, dk.

TENSAS PARISH—A. R. Willis' Curry 1, 39-11-12e, sd 3545 ft. L. A. Duvall et al's Martin Jacoby 1, ne ne 1-14-11, rig.

UNION PARISH—Don Brooks, Tr.'s Douglas 1, ne sw 9-22-2w, 12-inch cas 170 ft, top chalk 2317 ft, dr chalk 2437 ft.

WEBSTER PARISH—D. M. Coyle's Frazier 1, 27-23-11, dk. Cassidy & Davis' Nickerson 1, 29-23-10, sd 160 ft.

ARKANSAS

CHICOT COUNTY—W. R. Smith's Lytle 1, 31-18-3, ta 2925 ft.

CLAY COUNTY—S. C. Jeffus, Tr.'s, Underwood 1, 4-20-8e, sd 1252 ft.

CLEBURNE COUNTY—Donnell et al's Fee 1, 33-11-9, sd after testing sw 3515 ft.

CLEVELAND COUNTY—Crumm & Stilwell's Bell 1, 10-10s-12w, rig.

COLUMBIA COUNTY—Kendall Oil Co.'s

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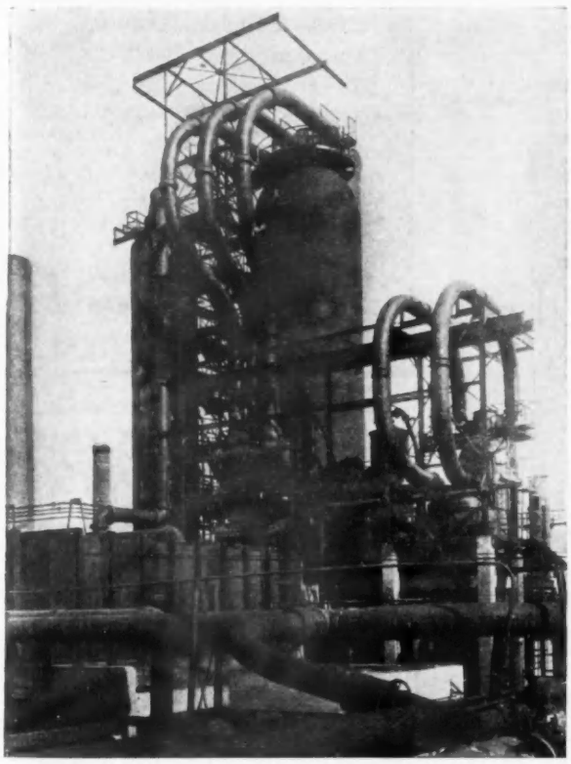

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Fullenwider & Kitchen 1, ne ne 13-17-22, 8¼ cas 800 ft, sd 804 ft.

DALLAS COUNTY—Zepp O&G Co.'s W. E. Hillman 2, se ne 20-10-13, 10-inch cas 135 ft, dr gumbo 864 ft. Jno. James, Tr.'s, Fordyce Lbr. Co. 1, 11-9s-15w, sd 2620 ft. E. C. Brewer, Tr.'s, Hillman 1, 20-10-13, sd in white sand 2869 ft.

DREW COUNTY—Cooperative Dev. Co.'s Hardy 1, ne ne 6-13s-7w, 12½ cas 97 ft, sr td 1506 ft.

HOT SPRINGS COUNTY—Starr Oil Co.'s Cunningham 1, 11-5-16, 12½ cas 62 ft, sd in shale and bldrs 1262 ft.

JOHNSON COUNTY — Blackwell O&G Co.'s Wyver 1, 21-8-23, ta 5600 ft.

LAWRENCE COUNTY—Marguerite Dev. Co.'s Broadway 1, 31-17-1, sd 45 ft.

LINCOLN COUNTY — L. B. Cook, Tr.'s McGehee Pltg. Co. 1, 5-8s-7w, fsh stuck drill stem, td 2800 ft.

LITTLE RIVER COUNTY—Fay Roberts Oil Co.'s Russell 1, 25-12-29, lcn.

LOGAN COUNTY—M. W. Greesom's Parks 1, 21-8-24, sd 1309 ft. J. H. Flowers' White 1, 13-5-26, sd 3610 ft.

MILLER COUNTY — W. E. Noel et al's Dickson 1, 11-20-27, sd in shale and gumbo 1955 ft.

PIKE COUNTY—Henderson et al's Tilyou 1, 26-8-24, ta 2920 ft. Kentucky-Ark. O&G Co., Inc.'s, East 1, 13-9-23, sp dr 120 ft.

SCOTT COUNTY — Heavener O&G Co.'s Reser 1, 36-4-26, sd 1536 ft. Waldron O&G Co.'s J. G. White 1, 17-3n-29w, sd wo cas 1860 ft (second hole).

SEBASTIAN COUNTY—M. W. Greesom's Spears 1, 9-7-29w, sd 1536 ft. Ozark Nat. Gas Co.'s Giard 1, 34-8n-30w, dr 2132 ft (no recent report).

SEVIER COUNTY—Tri-State O&G Co.'s Bank of DeQueen 1, 34-8s-32w, rigged up and sd.

UNION COUNTY — Southern Prod. Co.'s Wingfield 1, 16-19-15, sd 2608 ft. Lion O. R. Co. et al's Guy P. Hayes A-9, ne ne 4-16-15, elev 96 ft, fsh chain tong pin, td 5154 ft (corrected depth. To be 6000 ft test). Wilson & Chapman's Handley 1, 3-18-13, ta 3750 ft. Doty Norman A-1, 3-18-13, lcn; Doty Norman B-1, 3-18-13, lcn; Henry Norman 1, 3-18-13, 10-inch 120 ft, dr shale 2816 ft. Marine Oil Co.'s W. B. Thompson D-1, 3-18-13, rigged up and sd; Winn Est. A-2, 11-18-13, ta 3586 ft.

WASHINGTON COUNTY—Lincoln Lease Holding Synd.'s Townsite 1, 3-15-32, ta 1500 ft. C. H. Willoughby's Jones 1, 34-16-30, sd 2150 ft. O'Hara & Shetterley's Boyd 1, 2-16-32, ta 650 ft. Delbert Graves' Cunningham 1, 14-15-32, sd in gray sand 602 ft.

VAN BUREN COUNTY — J. S. Martin's Scanland 1, 5-9-13, sd 50 ft.

YELL COUNTY—T. Luckett's Balcon 1, 36-7-12, sd 5710 ft

COLORADO

ADAMS — N. M. Slatt's 1, se 27-26-64w, carry 8⅝-inch at 3747 ft.

ARAPAHOE — McNebb Drlg. Co.'s Fitzsimons 1, ne 7-4n-68w, sdtr 5835 ft.

BOULDER—C. T. Ahlstrand's Woodley 1, nw 8-3n-70, dr 135 ft.

EL PASO—Utemore Synd., Cannon 1, ne 10-16s-66w, sd 1125 ft.

GRAND—Oil Mineral Lands, Inc., McElroy 1, sw 14-2n-81w, stand 545 ft.

JEFFERSON—Ruby Hill O&G Co.'s Braden 1, se 24-4w-59w, to run 6⅝-inch and test gas, td 3920 ft.

LA PLATA — McGarr Pete Co.'s Pinon Mesa 1, ne 34-33n-12, prep to spud. Klem Pete Corp.'s Olbert 1, se 9-26n-12w, stand 3125 ft. Murchison Oil Co., Droescher 1, nw 29-33n-12, change to cable tools, td 1505 ft.

LINCOLN—Eastern Colo. Oil Corp.'s State 1, 36-14n-57w, dr 3442 ft.

MONTROSE — Uncompahgre O&G Co., Title & Trust 2, 27-50n-10w, td 1021 ft.

MORGAN—Ind. Terr. Illum. Oil Co., State 1, ne 16-1n-57w, dr 5310 ft, hole trouble. Independent O&R Co., Schmidt 1, nw 19-6n-60w, rig. Juhan et al, Kent 1, sw 2-2n-57w, wtg cas 1200 ft. Colo. Ass. Oil Co., Humphreys 1, se 14-4n-58w, mvg in.

PUEBLO—Anchor Oil Co.'s Eeasley 1, sw 35-22s-57w, td 804 ft.

PARK—So. Park Oil Co.'s Milligan 1, se

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13.8s-76w, ur 6⅝-in. to 2405 ft. So. Park O&G Co.'s Easche 1, ne 5-9s-76w, dr 2432 ft.

RIO BLANCO—California Co.'s Raven 1, se 20-2n-102w, dr 1910 ft. Magnolia Pete Co.'s Maddock 1, se 9-2s-96w, dr 1420 ft.

ROUTT—Fish Creek O&G Co., Omholt 1, ne 29-4n-87w, to res. at 115 ft.

WASHINGTON—Middlemist Oil Co.'s Middlemist 1, se 14-4-56, stand 1510 ft.

WELD — Reiter-Foster and Platte Valley Pete Corp., Johnson 1, nw 24-6n-61w, 1500 bbls at 6645 ft, dd. Reiter-Foster's Johnson-Juhl 1, 14-6n-61w, dr 170 ft. Aztec Corp., Kirchoff 1, se 1-6n-61w, cellar. Retter Oil Co., Smith 1, 14-1n-68w, prep to test show 798 ft, td 1171 ft. Conoco, Gadbois 1, sw 24-6n-61w, sd 3080 ft. Conoco, Briggs 1, sw 13-6n-61w, dr 5400 ft. Vincent & Cunningham, Gadbois 1, nw 25-6n-61w, derrick.

NEW MEXICO

CHAVES—Neal et al, Russell 1, nw 21-14-25e, stand 2320 ft.

BERNALILLO—Norrins Realty Co, Pajarito Grant, 22-9n-2e, prep to spud.

DE BACA—Salado Dome Oil Corp., sw 6-4n-20e, cem cave 3181-89 ft. Landowners Oil Co., State 1, ne 16-1s-27e, co, td 4508 ft.

GUADALUPE—N. M. Prod. & Ref. Co., McMullen 1, 24-5n-16e, to case to 1819 ft with 12½-i.

HARDING—Kumbaco O&G Co., Kerlin 1, se 34-21s-30e, 3M carbon dioxide gas at 972 ft, sd.

LUNA—Angelus Oil Mining Ass'n, 20-21s-10w, cas trouble at 6155 ft.

McKINLEY—J. W. Halsell's 1, 17-18-9w, sd 3255 ft. Wms. et al's A. T. S. F. 1, se 19-18n-8, stand 1900 ft. United Kern Pete, Inc., sw 1-18n-11w, lcn. Dysart et al, Dysart 2, ne 14-14-10w, sd temp. at 1315 ft. Johnswood Oil Co., Hannett 1, sw 12-15n-10w, dr 910 ft.

MORA—Fulton Pete Corp.'s Santa Fe Dioxide Co., Wagonmound 1, ne 14-19-21, stand 1316 ft.

OTERO—Ernest et al's 1, se 20-25s-7e, sd 1005 ft. Pasotero Oil Corp., Evans 1, sw 22-24s-12e, dr 1400 ft, last report.

RIO ARRIBA—Berrenger et al's Hartman 1, ne 8-29n-7w, sd 825 ft. San Juan Pete Co.'s Gov't 1, se 14-30n-7w, sd 250 ft. Governador Oil Co.'s 1, se 12-29n-7w, dr 1506 ft.

ROOSEVELT—Peterson et al, Good 1, ne 32-5s-30e, ready to spud.

SANDOVAL—Anshutz et al, Tejon Grand 1, unsectionized, dr 240 ft.

SAN JUAN—Kutz Canon O&G Co.'s Day 1, se 20-28n-10w, dr at 3566 ft. Rio Grande Dev. Co.'s 2, 9-29-11, stand 1530 ft. Continental Oil Co.'s Rattlesnake 24, 1-29n-19w, repair to pump, td 4745 ft. San Juan Leaseholds, Bowman 3, ne 30-30-15, sd 2685 ft. Reserve Oil Co., Reserve 3, se 36-22-14, ur, td 800 ft. R. C. Oswell et al, nw 34-30n-11w, dr 615 ft. Williams et al, Stallings 1, sw 17-25n-15w, stand 150 ft. Ortega et al, Westwater 2, ne 24-31n-18w, fsh, td 2490 ft. Dorothy Oil Co.'s Terwilliger 2, se 29-30-9, sd 1750 ft.

SANTA FE—Jones, Owsley et al, 5-10n-9e, dr 225 ft.

TORRANCE—Williams et al's Staplin 1, ne 16-8n-10e, sd 1643 ft. Estancia Valley-Carbon Dioxice Dev. Co., DeHart 2, se 12-7n-7e, dr 75 ft.

VALENCIA—Harlan et al, Harlan 5, nw 5-6n-2e, dr 1920 ft.

MONTANA

CASCADE—Andover Oil Co.'s Floweree 1, se 29-21-2w, td 2175 ft, hf sulfur water.

GALLATIN—Gallatin Valley Oil Co., 1-1n-4e, dr 800 ft, last report.

GLACIER—Fulton Pete Corp.'s Blackfeet 1, ne 28-38-12w, recem 2600 ft.

GOLDEN VALLEY — Golden Valley Oil Co., 28-6n-22, td 2050 ft, last report.

LIBERTY—Peoples O&G Co., First Nat'l Bank 1, ne 17-36-6e, sd 1285 ft. California Co., for Utopia Oil Co., se 11-33-6e, dr 3230 ft.

ROSEBUD—Prairie O&G Co., 1-XX, 26-10-39e, dr 1620 ft.

SWEETGRASS—Shoshone Cons., nw 23-2n-15e, run 6-inch, td 5793 ft.

TETON—Andover Oil Co.'s Carlson 1, 5-24-4w, stand 150 ft. California Co.'s Sullivan 1, nw 34-27-7w, dr 1924 ft. Earl Oil Corp., Gad 1, se 22-22-8w, td 3730 ft. Trans-American Oil Co,. State 1, sw 21-24-8w, dr 760 ft.

TOOLE—Liquid Gold Oil Co.'s Elbert 1, ne 25-36-12, resum, to run 5-inch to s.o.w. 2480 ft. Oregon Oil Synd., se 20-36-2e, dr 150 ft.

YELLOWSTONE—Pan American Oil Synd., 23-2s-24e, dr 1300 ft.

WYOMING

CARBON—Midwest Refining Co., U. P. 27, 27-11-81, dr 3680 ft. Prairie O&G Co., Bunker Hill 1, 29-27-87, dr 3120 ft. P. & R. Overland Dome 1, 19-20-83, sd 1366 ft. Vermillion Oil Co., sw 16-12n-99w, dr 4412 ft, last report.

CONVERSE—Phillips Pete Corp., 27-32-69, dr 11th core test. John Ackard, 24-33-72, gas show 1490 ft. Gust Anderson, se 7-35-75, lcn. Otto Olston, 6-32-74, dr 670 ft.

FREMONT—Wiebolt et al, 35-33-99, sd 1850 ft. Ward O&G Co., 28-34-90, dr 2180 ft. Yellowstone Oil Co., 14-38n-94w, dr bel 617 ft last report.

LINCOLN—Wyo. Prod. Co., 14-24-113, 1700 ft last report.

NATRONA — Midwest's 11, nw 32-34n-77, stand 5340 ft. Cuyler Oil Co., 23-36n-85w, stand 2290 ft. Midwest's Midway 1, ne 23-35n-79w, co 5940 ft. Summit Oil Co., 21-33-80, set 8¼-inch at 1300 ft.

NIOBRARA—Globe Pete Corp., 2-39-61, dr 248 ft last report.

SHERIDAN—R. & D. Oil Co., se 2-57-87, sd 940 ft.

SUBLETTE—Cretaceous Oil Co., sw 7-28-113, stand 350 ft.

UINTA—Transwestern Petroleums, Ltd., 6-14-118, fsh tools 3100 ft. Clawson et al, 29-14n-118w, lcn.

WASHAKIE—Ohio Oil Co., lot 14, 19-45-92, coring 7255 ft.

WESTON—LeFaivre Oil Synd., se 29-45n-68w, sd 1314 ft. Gose Synd., 28-47-65, dr 4929 ft. Julius Peters et al, Witzell 1, se nw 30-46-64, co 1940 ft. Stockade Anticline Synd., 32-45-60, dr 712 ft.

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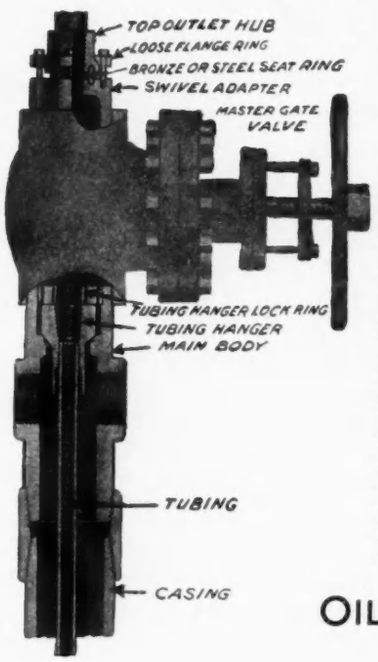

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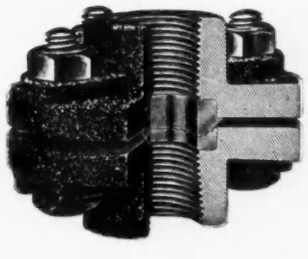

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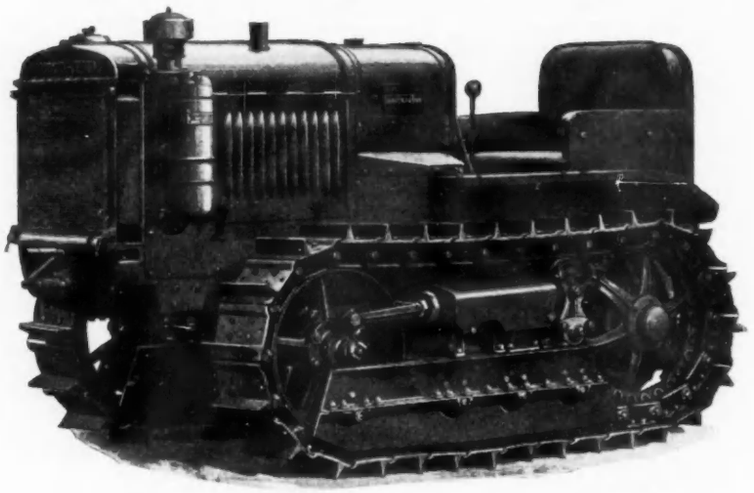

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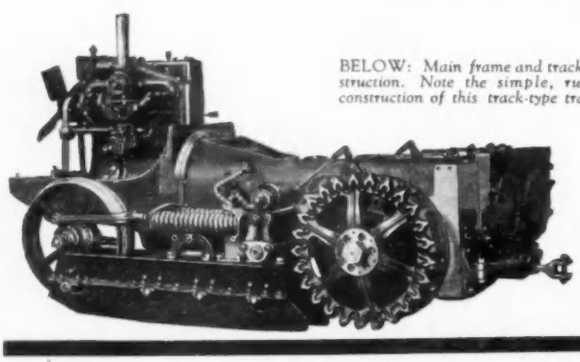


BELOW: *Main frame and track construction. Note the simple, rugged construction of this track-type tractor.*

Brief Facts: The track frame, rollers, sprocket, and idler are of scientifically treated steel alloys. The lower track rollers, which carry the weight of the tractor, have unusually large bearing surfaces. The bearings are fully protected from dirt by self-adjusting oil seals and felt washers. The roller shafts and thrust bearings are submerged in oil. A top track roller carries the weight of the track.

The front of the TracTracTor is mounted on a transverse spring. The track frame is free to oscillate so that the tractor frame is subject to no undue stress when operating over uneven ground.

Accessibility is another important feature. The clutch, transmission, steering clutches, steering-clutch brakes, and many other parts can be removed quickly for inspection or adjustment.

New Equipment for the Field

MACHINERY • TOOLS CATALOGS • BOOKS

▼ ▼ ▼

Convertible Oil and Gas Engine

TITUSVILLE IRON WORKS COMPANY

Titusville Iron Works Company has placed on the market a new convertible oil and gas engine which can be changed from gas to oil fired or from oil to gas fired in two hours, according to the manufacturers.

Simplicity, economy and reliability are the main characteristics striven for in the new convertible engine. The only auxiliary equipment necessary for the conversion consists of an injection pump and injector, cylinder head, special governor, eccentric and rod.

Complete details on the engine, which is a 40-horsepower, two-cycle affair, may be obtained by writing Titusville Iron Works Company, Titusville, Pennsylvania.

Welding Tong

GEARENCH MANUFACTURING COMPANY

Gearench Manufacturing Company, 313-323 Hughes Street, Houston, Texas, announces production and deliveries on its new Petol Welding Tong, a light, strong, chain-type tong designed especially for turning pipe, in either direction, on welding jobs.

The new tong is of the friction type, and has no teeth to cut or mar the pipe. Without being removed from the pipe, it turns pipe toward or away from the operator. The full length illustration accompanying shows the tong in position to turn pipe toward operator. The smaller illustration shows tong in position to turn pipe away from operator. In either direction, grip is instant and positive, and release is also quick and positive. Tong can not bind or "freeze" on pipe so as to rotate it when being released. This is claimed as a unique advantage over other types of tongs used on welding work. Tong ratchets freely and perfectly in either direction. Weight of tong is carried on pipe, making operation easy. Tongs are furnished with exceptionally long handles for powerful leverage. Jaws are made in one piece, eliminating spreading. Each size of jaw fits several sizes of pipe. Jaws are made in sizes to fit pipe from six-inch to 26-inch, and all jaws are quickly interchangeable by removal of one bolt. Changing jaws does not necessitate removal of chain. Construction is of nickel chrome steel throughout. Heavy, special heat treated chains are furnished. Chain is easy to hook and unhook, chain hooking slots being integral with the jaws.

Petol welding tongs are furnished in three handle lengths, according to size of pipe to be turned. Jaws are furnished in the following sizes: four-inch, six-inch, eight-inch, 10-inch, 12-inch, 14-inch, 16-inch, 18-inch, 20-inch, 22-inch, 24-inch and 26-inch.

New Gearech Tong

Dual-Control Separator

NATIONAL TANK COMPANY

National Tank Company, Tulsa, is introducing something entirely new in separators in its new National "Dual-Control" oil and gas separator, which includes new features of design and a new application of the best separation principles.

New features and refinements include:

1. New diaphragm liquid level and back pressure control.
2. Automatic adjustment of back pressure.
3. Provision for predetermined back pressure adjustment.
4. Operation on pressure or vacuum.
5. Entirely automatic operation on all types of wells.
6. Ease in installing and regulating and other improvements.

The new diaphragm liquid level control is said to be the greatest improvement ever made on an oil and gas separator. It delivers more power, is more "trouble-free," and lends itself better for use on a separator than a float. The power developed by the diaphragm increases as the liquid level rises in the tank, it does not occupy valuable space within the separator and its action cannot be retarded by sediment or foreign matter.

Particular consideration has been given for the adjustment of back pressure on the new National separator. The applying of back pressure for the purpose of forcing the separated oil from the separator is entirely automatic with the control and the use of unnecessary pressure is avoided. However, if it is desired to carry a predetermined amount of pressure to supply gas for use, provision is made for adjusting the desired pressure on the separator. If additional pressure is then required to force the oil from the separator, the control automatically applies the minimum amount necessary when needed and releases the additional pressure as the oil level recedes.

The fact that the separator holds the necessary pressure to an absolute minimum at all times, and that the oil and gas release valves are oversize for their line pipe sizes, accounts for the unusual capacity of the new National at low pressures. The particular manner in which the control operates the valves,

National Separators

which is by opening the oil valve wide before applying any additional pressure, gives the proper interval before applying extra pressure.

The new National performs equally well on minus pressures as well as plus pressures. No oil can enter the gas lines for the reason that a raise in the oil level above normal will close the gas outlet valve, relieving the vacuum within the separator until the oil level is again at the normal stage.

On heading or steady flowing wells alike, this separator gives perfect separation at all times, applying back pressure only when needed and then only in the exact amount required. Its advantages for air-gas lift use or wherever back pressure is detrimental is here brought out and it greatly assists in obtaining maximum recovery in that it offers no unnecessary resistance to breaking out or flowing.

Industrial Engines

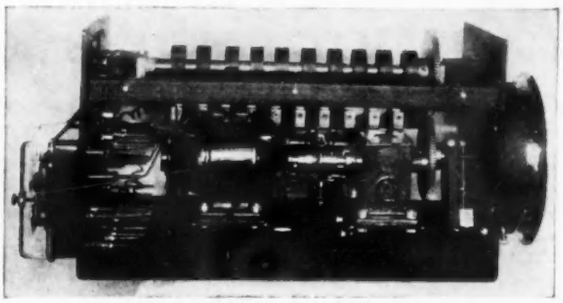
WAUKESHA MOTOR COMPANY

Waukesha Motor Company has entered a new field in the industrial engine market by the manufacture of a series of two small four-cylinder engines of 10 horsepower to 20 horsepower size, known as the Agile Fours.

These smallest Waukesha engines have the standard Ricardo combustion chamber, short, stiff crankshaft supported by three unusually large, bronze backed replaceable bearings, full pressure oiling, built in governor and detachable flywheel housing. In addition to these standard and typical Waukesha features, there is an unusual degree of flexibility in the facility for mounting accessories. It is possible to install a full series type oil filter, complete electric starting and lighting system, three point suspension, either battery or magneto ignition.

Oil is distributed by a positively driven gear pump submerged in the oil reservoir and surrounded by the Waukesha patented oil level equalizer. This feature insures a positive supply of oil under full pressure at all levels and temperatures.

Complete information may be obtained by writing Waukesha Motor Company, Waukesha, Wisconsin.



Inside of Westinghouse Pressure Gauge

Pressure Gauges

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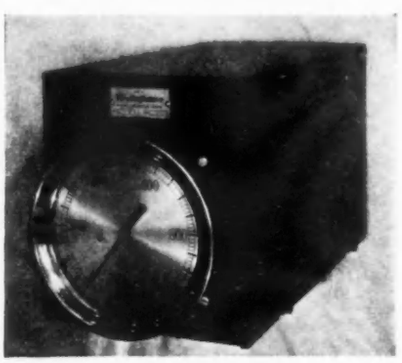
In general, the device consists of motor driven contacts which are made to follow the pressure gauge. To accomplish this, the shaft of the pressure gauge is extended through to the rear and a contact mounted on it which will follow the change in pressure. As the pressure tends to change up or down, it strikes another contact which is connected directly to a motor-driven shaft which rotates it in a direction to cause the contact to again open. Thus the motor-driven contacts will move or rotate in response to variations in pressure as indicated by the pressure gauge. The contact carried along with the pointer has no mechanical connection to the rest of the device.



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For sixty-seven years A. M. Byers Company has been establishing "new highs" in wrought-iron quality. The physical and chemical control which our modern manufacturing methods permit makes Byers Genuine Wrought-Iron the best wrought-iron ever produced. A. M. Byers Company, Pittsburgh, Pennsylvania.

THESE ARE THE BYERS GENUINE WROUGHT-IRON PRODUCTS

PIPE NIPPLES PLATE
TUBING COUPLINGS BAR-IRON
CASING WELDELLS* BLOOMS
SPECIAL BENDING PIPE

**Made from Byers Genuine Wrought Iron by the Locomotive Terminal Improvement Company of Chicago*

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AN INVESTMENT – NOT AN OUTLAY

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General Electric Company, Schenectady, recently published catalog GEA-77D, superseding GEA-77C, and devoted to capacitators for power factor correction.

The illustrated catalog explains the application of capacitators, how they improve power factors, capacitator calculations. Then follows descriptions of various types of capacitators made by the company.

A copy of the catalog GEA-77D may be obtained by writing General Electric Company, Schenectady, New York.

Sullivan Machinery Company, Chicago, completed in August a catalog describing quite fully the Sullivan line of electric and compressed air, two and three drum hoists for scraper mucking purposes.

Features of the hoists not hitherto brought out in Sullivan Machinery Company's catalogs include the use of National Electric Manufacturing motors on certain sizes, notably the 200-horsepower motor, and two new sizes of compressed air hoists using the "Turbinair" motor.

A copy of the scraper mucking hoist catalog may be obtained by writing Sullivan Machinery Company, Chicago, Illinois.

Deep Well Drilling In Third Edition

A highly valuable contribution has been made to the literature on oil and gas well drilling and operation through publication of the third edition of "Deep Well Drilling," by Walter H. Jeffery of Toledo, Ohio. It is a comprehensive, 816-page, fully illustrated book setting forth the principles and practices of deep well drilling and constituting a hand book of useful information for the engineer and the well driller.

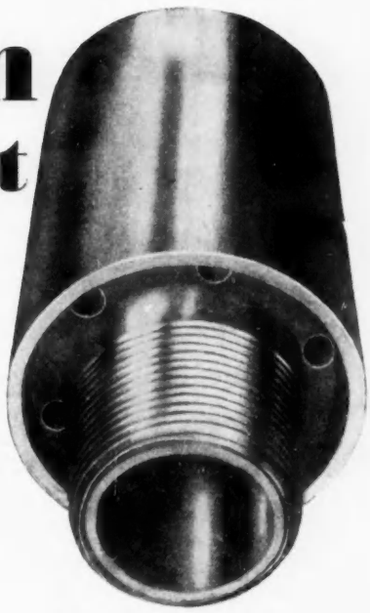
In its two previous editions this book was very popular and well received by the oil industry, and the third edition will no doubt prove equally if not more welcome. For it incorporates the many notable advances which have been made during the past several progressive years in both engineering and practices in drilling, completing and operating oil and gas wells.

The book gives full discussion of the different phases of operation in finding, drilling for, and producing petroleum, the volume being divided into 24 chapters. It begins with discussions of geology, and the formations from which oil and gas are produced, tabulating the formations; and presents data on geophysical methods of prospecting and use of aerial photography and air mapping.

Following this material, treated in the first two chapters, the data on well drilling proper begins. The rotary system of drilling is treated in two chapters, one covering drilling outfits, specifications of equipment, and derricks, and the other treating of rigging up, drilling, handling pipe, bits, weight control, reaming, drill pipe, fishing. The discussion is accompanied by numerous photographs, drawings, illustrations, charts and tables. Supplementing the main chapters on rotary drilling there are others dealing with automatic feed and weight control in rotary drilling, use of mud fluid, use of core barrels, and diamond core drilling.

Standard or cable tool drilling is treated in similar manner to the presentation of the data on rotary drilling, with three

A Combination that can't be Beat



Type "M" Bit Body

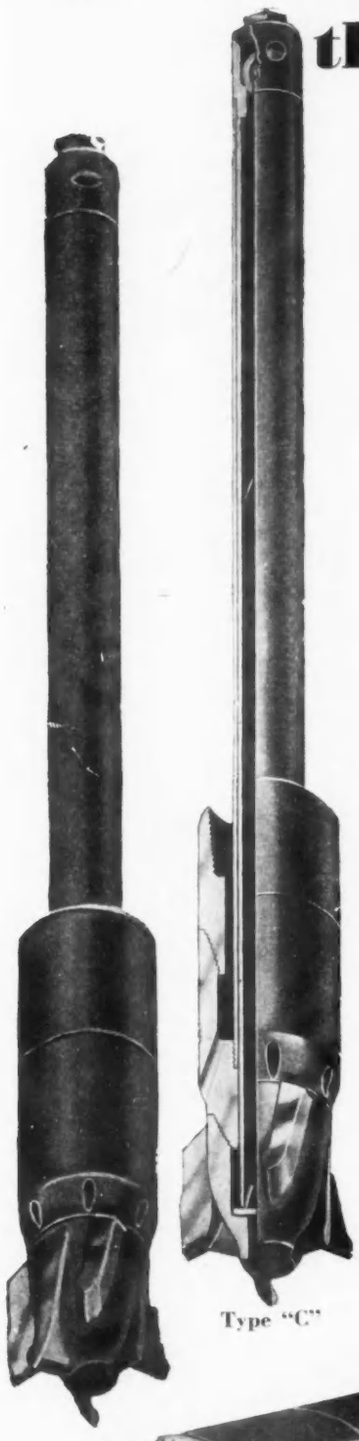
Brewster offers a "3 in 1" combination that gives you more efficient and economical results.

1. The Split Liner is furnished with the Perfection Core Barrel so your core comes out undisturbed and unbroken.

2. Type "M" Cutter Head allows water circulation on the cutting edge so the core is cut clean and quickly from the hardest formations. By the use of Type "M" Bit Body (which is furnished free) the Type "M" Cutter Head can be used with the Type "C" Core Barrel.

3. Roller Cutter Heads can also be used with the Perfection Core Barrel by use of the Type "M" Bit Body, thus enabling you to cut the hardest rock formations.

Type "M" Cutter Head



Type "C"

Roller Core Bit Head

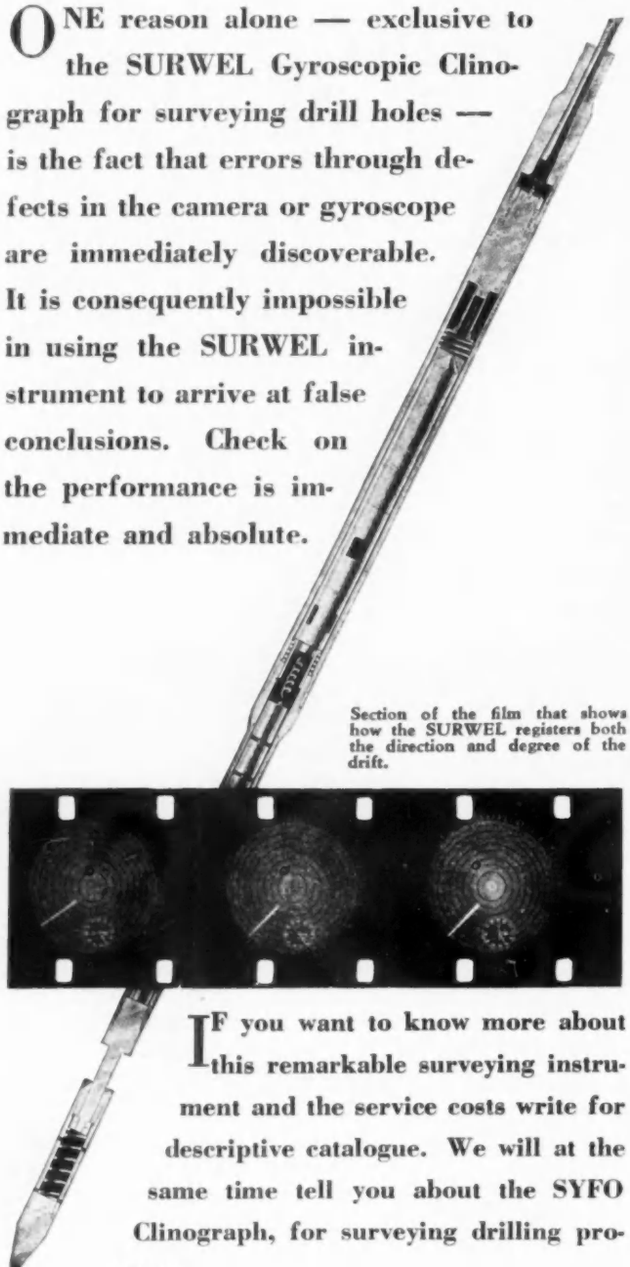
Your Supply House Carries All Brewster A. P. I. Products

The Brewster COMPANY~INC.
Shreveport, Louisiana

Warehouses: The Iverson Specialty Co., Oklahoma City, Oklahoma, Phone 2-2833; The Brewster Houston Store, 2000 Harrington, Capitol 2031.

It Can't Go Wrong!

ONE reason alone — exclusive to the SURWEL Gyroscopic Clinograph for surveying drill holes — is the fact that errors through defects in the camera or gyroscope are immediately discoverable. It is consequently impossible in using the SURWEL instrument to arrive at false conclusions. Check on the performance is immediate and absolute.



Section of the film that shows how the SURWEL registers both the direction and degree of the drift.

IF you want to know more about this remarkable surveying instrument and the service costs write for descriptive catalogue. We will at the same time tell you about the SYFO Clinograph, for surveying drilling progress.

Sperry-Sun Well Surveying Co.
1608 Walnut Street, Philadelphia, Pa.

DALLAS, TEXAS
1501 Caruth Street
TULSA, OKLAHOMA
402 Petroleum Building
HOUSTON, TEXAS
1417 Esperson Building

LOS ANGELES, CALIFORNIA
415 Petroleum Securities Building
TYLER, TEXAS
Bell Building
CALGARY, ALBERTA, CAN.
Room 1, Central Block

SURWEL Clinograph

chapters covering the subject in a detailed and comprehensive way.

Straight hole drilling, which has received wide attention during the past several years, is given special treatment, the cause and effect of crooked holes being set forth, together with means of correction and prevention of them.

Casing for wells is dealt with in three chapters, discussing casing used in the various fields, casing stresses, casing equipment, cementing casing, shutting off of water, and use of packers.

Shooting of wells consumes a full chapter, and completion of wells another, while practices in operating producing wells are also discussed in detail, with data presented on the gas-air lift method of producing oil, and on the pumping of oil wells and operation of producing properties. Costs of drilling wells in various localities are presented.

Derrick lighting receives special treatment, as does electricity in its application to the producing division of the oil industry.

Following a brief chapter of a technical nature on strength of materials there is a very interesting and valuable chapter of general information, covering both popular and technical subjects. The latter presents a comparison of the world's production of petroleum in 1923, 1929, and 1930; tabulates the 17 deepest wells in the world; names record strings of casing; carries a table with interesting details on general world occurrence of petroleum; and presents data on forms of drilling contracts, life of well drilling equipment, instructions for splicing manila and wire cables, oil camp sanitation, well logs, oil and gas leases, well spacing, belting, steam engines, and many other facts. The final chapter of the book presents the important specifications and codes of the American Petroleum Institute.

An idea of the completeness and thoroughness of the book is suggested by the fact that the index to it covers 23 pages of small type.

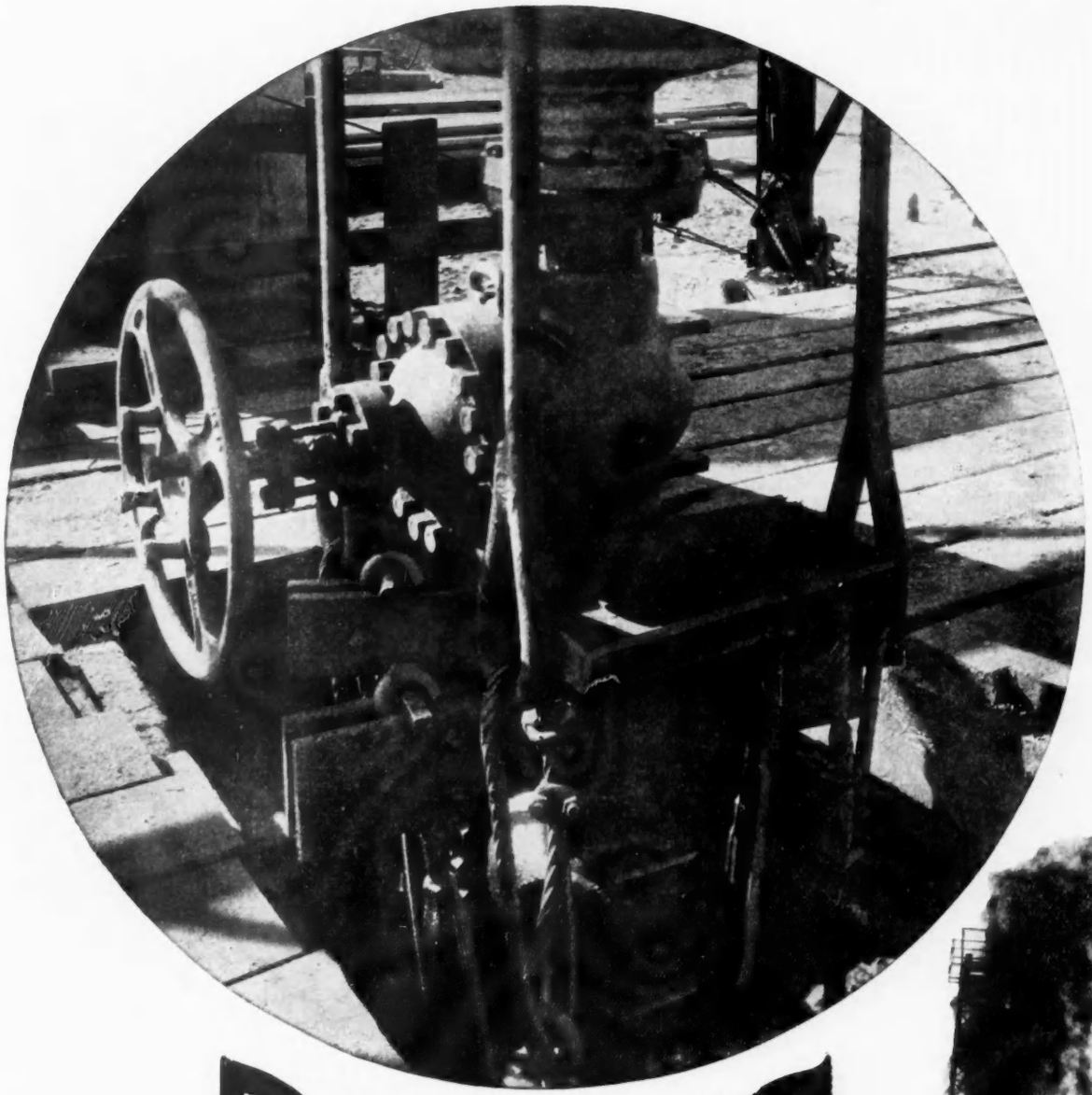
"DeepWell Drilling" in its third edition has just come off the press. It is an attractive book, with dark red cloth cover bearing gold inscriptions. The book was published by The Gulf Publishing Company, 3301 Buffalo Drive, Houston, Texas, and copies may be obtained at that address at $6 each.

Pomona Pump Company, Pomona, has issued bulletin 16-A, describing in 32 pages various types and capacities of Pomona turbine pumps ranging in capacities from 15 to 5000 gallons per minute.

Pomona turbine pumps are characterized by effective water lubrication, accomplished by application of the Goodrich cutless bearings. Pump heads can be furnished in three modifications: the unidrive head, the flexible coupling head, and the belted head, all of which—with the exception of the smaller sizes—are equipped with non-reverse ratchets.

Copies of the catalog may be obtained by writing Pomona Pump Company, Pomona, California, for Bulletin 16-A.

Lukenweld, Incorporated, Coatesville, Pennsylvania, announces the appointment of John S. Bleecker as sales manager. Mr. Bleecker graduated from Massachusetts Institute of Technology in 1898, majoring in mechanical and electrical engineering. From 1901 to 1928 most of his time was spent in executive management of enterprises of Storne & Webster, Day & Zimmerman and Bates, Incorporated. From 1928 until his affiliation with Lukenweld, Incorporated in 1931, he was engaged in public utility and industrial engineering.



DARLING

GATE VALVES » »

An oil well may mean a fortune,—it *does* mean Valves. It should mean both. 140,000 barrels of oil and 52,000,000 cubic feet of gas per day with an estimated rock pressure of 2400 pounds is the output of this operation. There is a reason why it is controlled throughout by Darling Gate Valves. For high pressure gas well, for cross country pipe line work, for general field use, Darling Gate Valves can be depended upon to open easily and close tightly—all anyone expects of a valve; but it takes a Darling to satisfy those who demand simplicity, long wearing quality and simplified field repairs.

» » AND a fortune in Oil!

DARLING VALVE & MFG. CO., Williamsport, Penna.

HOUSTON **NEW YORK** **OKLAHOMA CITY**

Mid-Continent Distributors:

FRICK-REID SUPPLY CORP.
Foreign Sales Manager
H. M. HEIN
Room 1405, 152 West 42nd Street, New York City, N. Y.

INTERNATIONAL SUPPLY CO.
California Distributor
HICKEY PIPE & SUPPLY COMPANY
3375 East Slauson Ave., Los Angeles, California

National Separators

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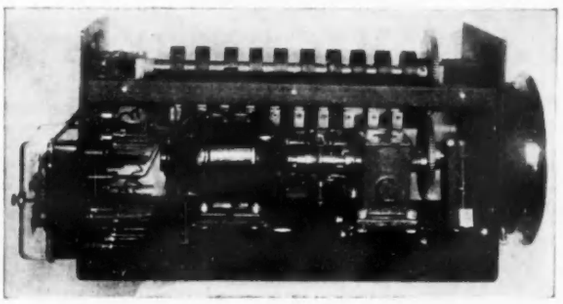

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A copy of the catalog GEA-77D may be obtained by writing General Electric Company, Schenectady, New York.

Sullivan Machinery Company, Chicago, completed in August a catalog describing quite fully the Sullivan line of electric and compressed air, two and three drum hoists for scraper mucking purposes.

Features of the hoists not hitherto brought out in Sullivan Machinery Company's catalogs include the use of National Electric Manufacturing motors on certain sizes, notably the 200-horsepower motor, and two new sizes of compressed air hoists using the "Turbinair" motor.

A copy of the scraper mucking hoist catalog may be obtained by writing Sullivan Machinery Company, Chicago, Illinois.

Deep Well Drilling In Third Edition

A highly valuable contribution has been made to the literature on oil and gas well drilling and operation through publication of the third edition of "Deep Well Drilling," by Walter H. Jeffery of Toledo, Ohio. It is a comprehensive, 816-page, fully illustrated book setting forth the principles and practices of deep well drilling and constituting a hand book of useful information for the engineer and the well driller.

In its two previous editions this book was very popular and well received by the oil industry, and the third edition will no doubt prove equally if not more welcome. For it incorporates the many notable advances which have been made during the past several progressive years in both engineering and practices in drilling, completing and operating oil and gas wells.

The book gives full discussion of the different phases of operation in finding, drilling for, and producing petroleum, the volume being divided into 24 chapters. It begins with discussions of geology, and the formations from which oil and gas are produced, tabulating the formations; and presents data on geophysical methods of prospecting and use of aerial photography and air mapping.

Following this material, treated in the first two chapters, the data on well drilling proper begins. The rotary system of drilling is treated in two chapters, one covering drilling outfits, specifications of equipment, and derricks, and the other treating of rigging up, drilling, handling pipe, bits, weight control, reaming, drill pipe, fishing. The discussion is accompanied by numerous photographs, drawings, illustrations, charts and tables. Supplementing the main chapters on rotary drilling there are others dealing with automatic feed and weight control in rotary drilling, use of mud fluid, use of core barrels, and diamond core drilling.

Standard or cable tool drilling is treated in similar manner to the presentation of the data on rotary drilling, with three

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Brewster offers a "3 in 1" combination that gives you more efficient and economical results.

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3. Roller Cutter Heads can also be used with the Perfection Core Barrel by use of the Type "M" Bit Body, thus enabling you to cut the hardest rock formations.

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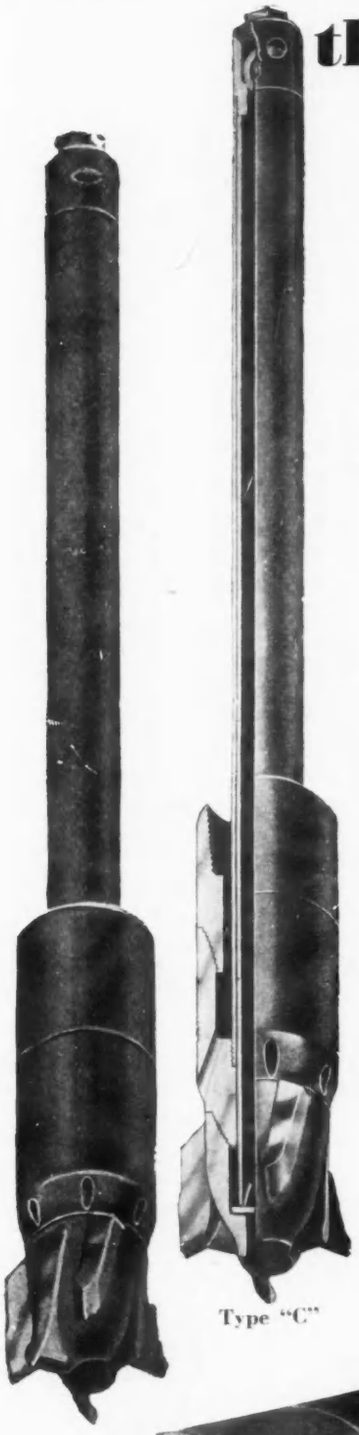

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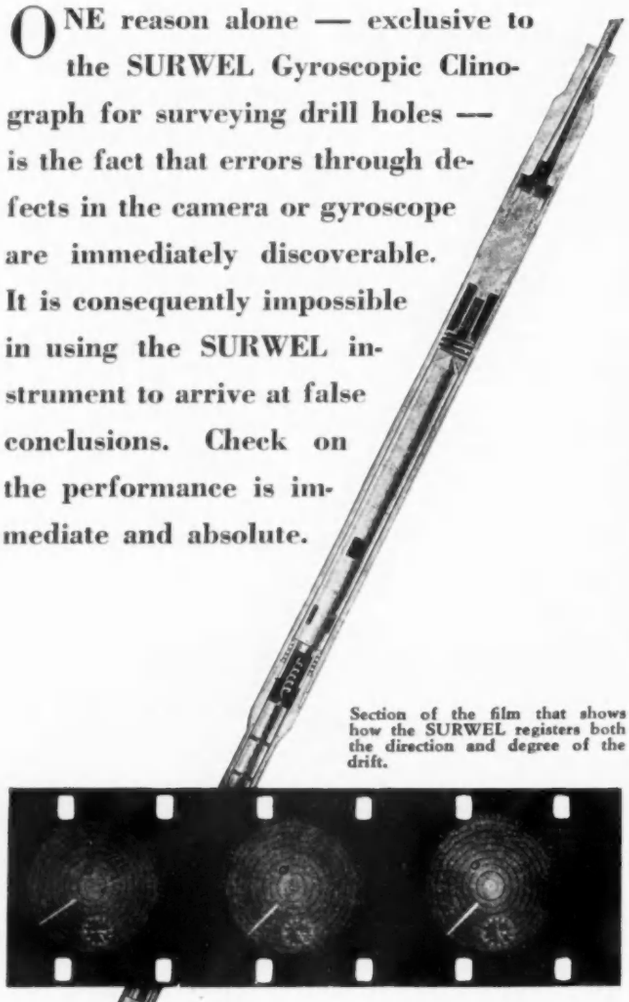

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SURWEL Clinograph

chapters covering the subject in a detailed and comprehensive way.

Straight hole drilling, which has received wide attention during the past several years, is given special treatment, the cause and effect of crooked holes being set forth, together with means of correction and prevention of them.

Casing for wells is dealt with in three chapters, discussing casing used in the various fields, casing stresses, casing equipment, cementing casing, shutting off of water, and use of packers.

Shooting of wells consumes a full chapter, and completion of wells another, while practices in operating producing wells are also discussed in detail, with data presented on the gas-air lift method of producing oil, and on the pumping of oil wells and operation of producing properties. Costs of drilling wells in various localities are presented.

Derrick lighting receives special treatment, as does electricity in its application to the producing division of the oil industry.

Following a brief chapter of a technical nature on strength of materials there is a very interesting and valuable chapter of general information, covering both popular and technical subjects. The latter presents a comparison of the world's production of petroleum in 1923, 1929, and 1930; tabulates the 17 deepest wells in the world; names record strings of casing; carries a table with interesting details on general world occurrence of petroleum; and presents data on forms of drilling contracts, life of well drilling equipment, instructions for splicing manila and wire cables, oil camp sanitation, well logs, oil and gas leases, well spacing, belting, steam engines, and many other facts. The final chapter of the book presents the important specifications and codes of the American Petroleum Institute.

An idea of the completeness and thoroughness of the book is suggested by the fact that the index to it covers 23 pages of small type.

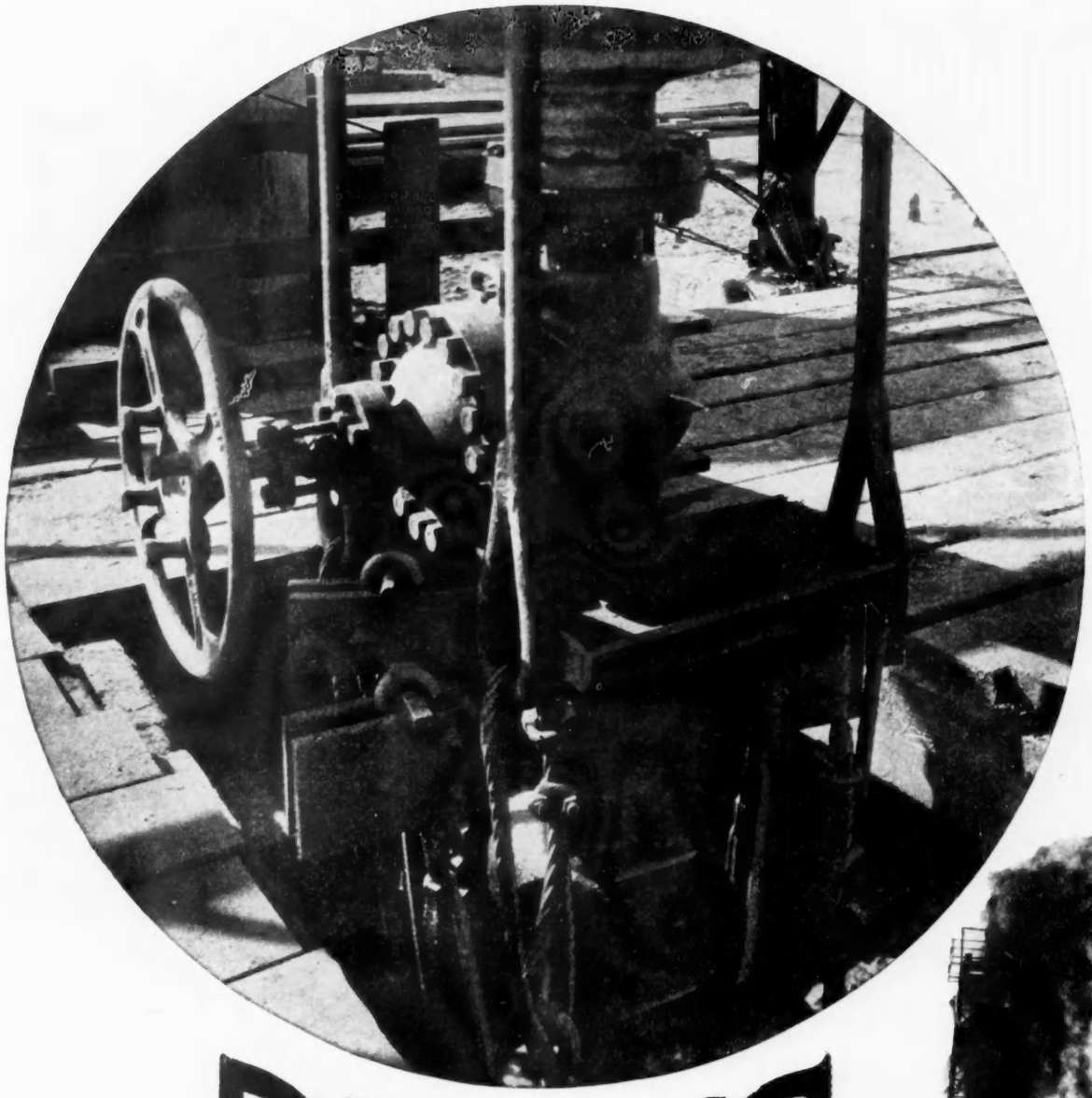
"DeepWell Drilling" in its third edition has just come off the press. It is an attractive book, with dark red cloth cover bearing gold inscriptions. The book was published by The Gulf Publishing Company, 3301 Buffalo Drive, Houston, Texas, and copies may be obtained at that address at $6 each.

Pomona Pump Company, Pomona, has issued bulletin 16-A, describing in 32 pages various types and capacities of Pomona turbine pumps ranging in capacities from 15 to 5000 gallons per minute.

Pomona turbine pumps are characterized by effective water lubrication, accomplished by application of the Goodrich cutless bearings. Pump heads can be furnished in three modifications: the unidrive head, the flexible coupling head, and the belted head, all of which—with the exception of the smaller sizes—are equipped with non-reverse ratchets.

Copies of the catalog may be obtained by writing Pomona Pump Company, Pomona, California, for Bulletin 16-A.

Lukenweld, Incorporated, Coatesville, Pennsylvania, announces the appointment of John S. Bleecker as sales manager. Mr. Bleecker graduated from Massachusetts Institute of Technology in 1898, majoring in mechanical and electrical engineering. From 1901 to 1928 most of his time was spent in executive management of enterprises of Storne & Webster, Day & Zimmerman and Bates, Incorporated. From 1928 until his affiliation with Lukenweld, Incorporated in 1931, he was engaged in public utility and industrial engineering.



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An oil well may mean a fortune,—it *does* mean Valves. It should mean both. 140,000 barrels of oil and 52,000,000 cubic feet of gas per day with an estimated rock pressure of 2400 pounds is the output of this operation. There is a reason why it is controlled throughout by Darling Gate Valves. For high pressure gas well, for cross country pipe line work, for general field use, Darling Gate Valves can be depended upon to open easily and close tightly—all anyone expects of a valve; but it takes a Darling to satisfy those who demand simplicity, long wearing quality and simplified field repairs.

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Squeaks From the Bull Wheel

▼ ▼ ▼

When tourists drive through Phoenix on their way to Tucson the following conversations are typical:

Cadillac drives up, chauffeur says, "How far is it to Tucson?"

"One hundred and forty miles," is the reply.

"Give me 20 gallons of gas and a gallon of oil."

Buick: "How far is it to Tucson?"

"One hundred and forty miles."

"Give me 10 gallons of gas and one-half gallon of oil."

Ford: "How far is it to Tucson?"

"One hundred and forty miles."

"Give me two quarts of water and a bottle of 3-in-1 oil and hold this son-of-a-gun until I get in."

Austin: "How far is it to Tucson?"

"One hundred and forty miles."

"Give me an aspirin tablet and a bottle of pop."—Skelly News.

Which reminds us that after the usual research on the problem of lubrication, a nationally known organization has recommended that the proper lubrication for an Austin is to hang it on the wall and spray with a Flit gun.

A man was buying a suitcase but none of those shown pleased him at all.

"When I buy a bag," he declared, "I like to see some cowhide in it."

"Oi," said the merchant, "you should want tricks. Am I a magician yet?"

"Honey, if you really do like this ukulele, I'm going to give it to you."

"An out-and-out gift?"

"Absolutely; there's no strings to it."

Mother: "How is it you have not done your school work?"

Little Daughter: "I have decided not to do any more. It's not fair. We children do the work and the teachers get paid for it."

Pa Tourist: "Just think, ma, that brick temple is 3000 years old."

Ma: "Aw gwan, it's only 1931 now."

"My sugar daddy has a heart of pure gold."

"Yes, it's surprising what treasures you will sometimes find in an old chest."

"Why is a girl's lover called her suitor?" asks L. C.

Because he either does or he doesn't.

Teacher: "Willie, where is Toronto?"

Willie: "Right between Davenport and Pittsburg."

Teacher: "Where did you get that answer?"

Willie: "On our radio set."

Stepping from a taxi in front of the Lambs', recently, a hurrying author presented the driver with a $20 bill to pay a meter charge of $1.10. The driver snorted, and remarked that it was the first twenty he had seen since shortly before the war, and to expect him to change it amounted to mockery. The passenger turned to an actor shading himself on the Lambs' stoop, and asked for a dollar and a quarter.

"If I had a dollar and a quarter, do you think I'd imperil it hanging around here?"

"Tell me, my dear, how do you manage to get the maid up so early in the morning?"

"It was rather clever of me. I introduced her to the milkman."

"Have you ever had any stage experience?"

"Yeah, I had my leg in a cast once."

"What did you get for your birthday?"

"A year older."

Irate Player—"I wasn't out!"

Sarcastic Umpire—"You weren't huh? Well, you just have a look at the newspaper tomorrow."

The new bathing suit is a costume with no hooks on it, but plenty of eyes.

Just Married—"My wife likes coffee for breakfast while I like tea."

A. R. Zimmer (Interstate)—"You'll soon get used to coffee."

The teacher was testing the knowledge of the kindergarten class. Slapping a half dollar on the desk, she said sharply, "What is that?"

Instantly a voice from the back row —"Tails!"

"I would like to dance like this forever."

"Don't you ever want to improve?"

"Those two girls are rivals in dress, aren't they?"

"Yes, each tries to outstrip the other."

THE BITE OF A BIT...

can be

handled only according to its dissolution.

With a wall, or ball, between the "bite" and the passing fluid, only a minimum amount of cuttings can be dissolved and washed up regardless of pump pressure or volume of fluid.

Write for complete information

The water courses in APPLEMAN BITS lead directly to the cutting edge. This not only provides a greater cooling effect but prevents balling up . . . or a wall forming between cutting edge and fluid exit.

Use APPLEMAN GUMBO BITS from now on and save time and money.

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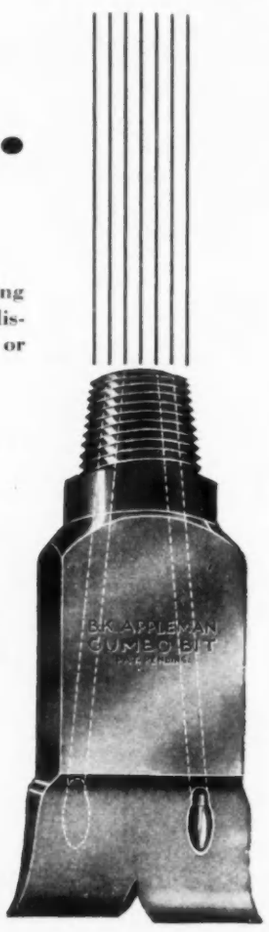
BEAUMONT, TEXAS



We're The Birds What *Knows* a Wrench!

Believe us—There's plenty o' speedin' up on our joints with this new Lowell "Safety Steel" Socket Wrench.
Why not — No liftin' — Just a steady pumping and we're ready for the next nut.

Put your beef on the Butt end of one of these tools Boy — and any joints gotta be tight.

You c'n take it from us these new Lowells are strong too, and they wear — That's why the Boss got 'em. You can tell 'em easy by the Red Socket and Black Handle .

Send for Catalog O.

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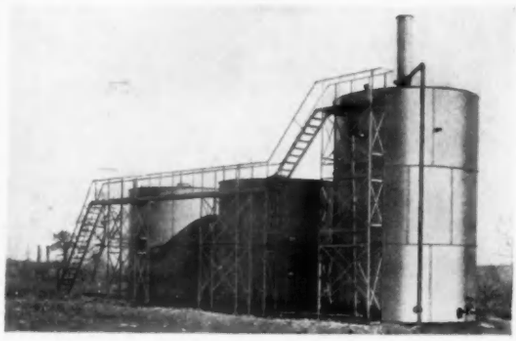
WORCESTER, MASS.

BUTLER



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The ADMORE is probably the most efficient Liner Barrel made; a pulsating effect is obtained which keeps the packing alive and active. Packing replacements are few and infrequent. Many producers install ADMORE when a new well is first placed on the pump where it promptly pays for itself by elimination of pulling costs and production saved. There is a descriptive circular on the ADMORE—sent on request.

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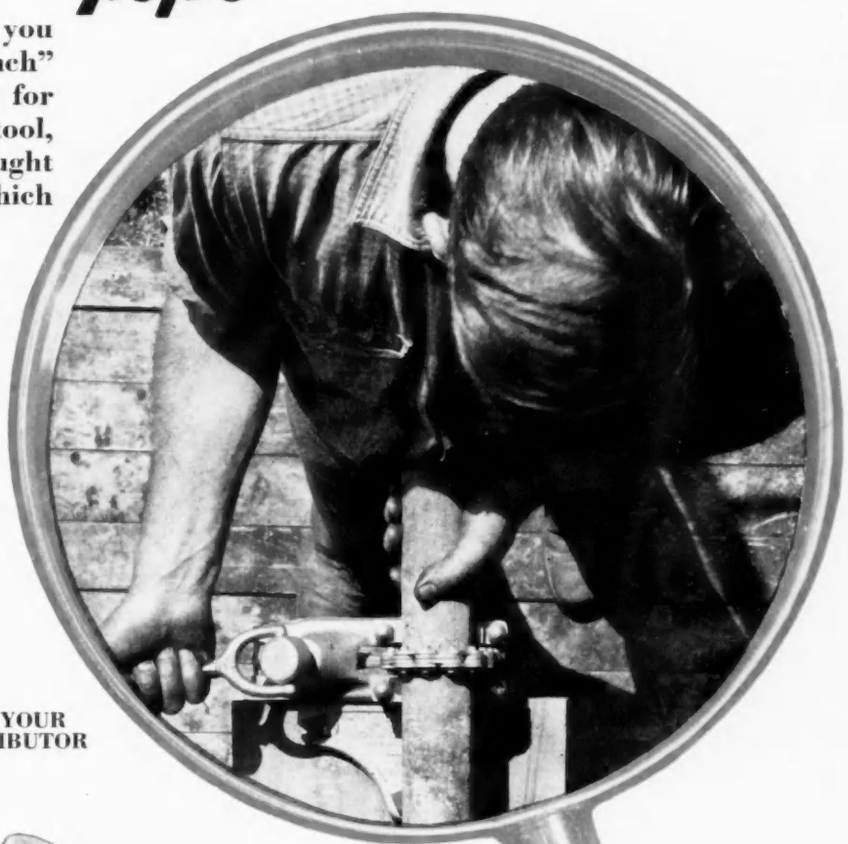

Supplied in two styles of finish; chrome-plated; standard, with orange panel in jaws.

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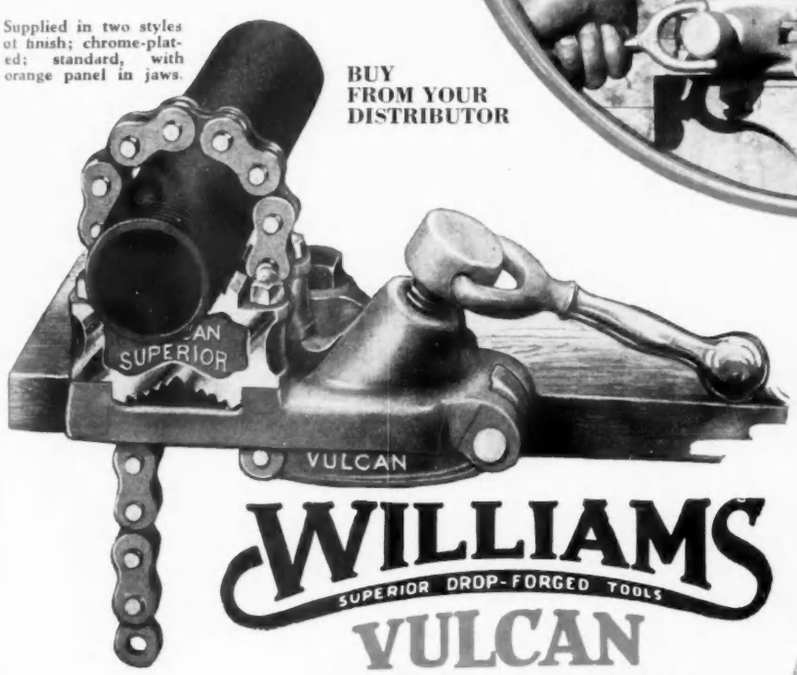

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